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JUNE

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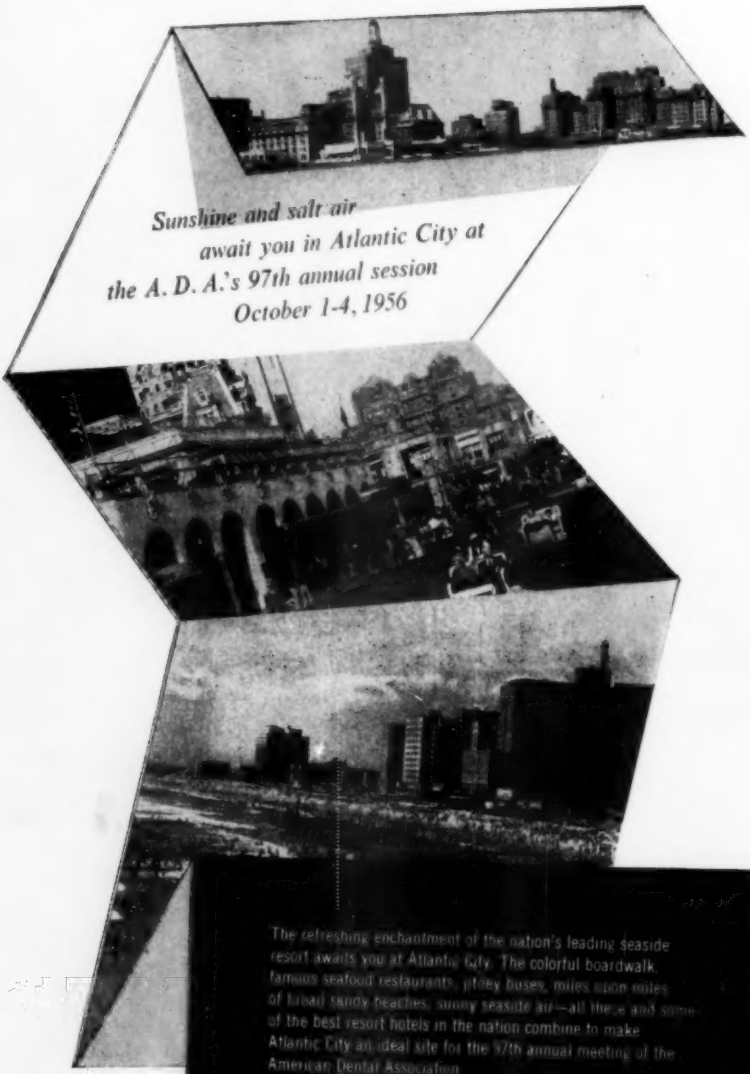
ATLANTIC CITY • OCT. 1-4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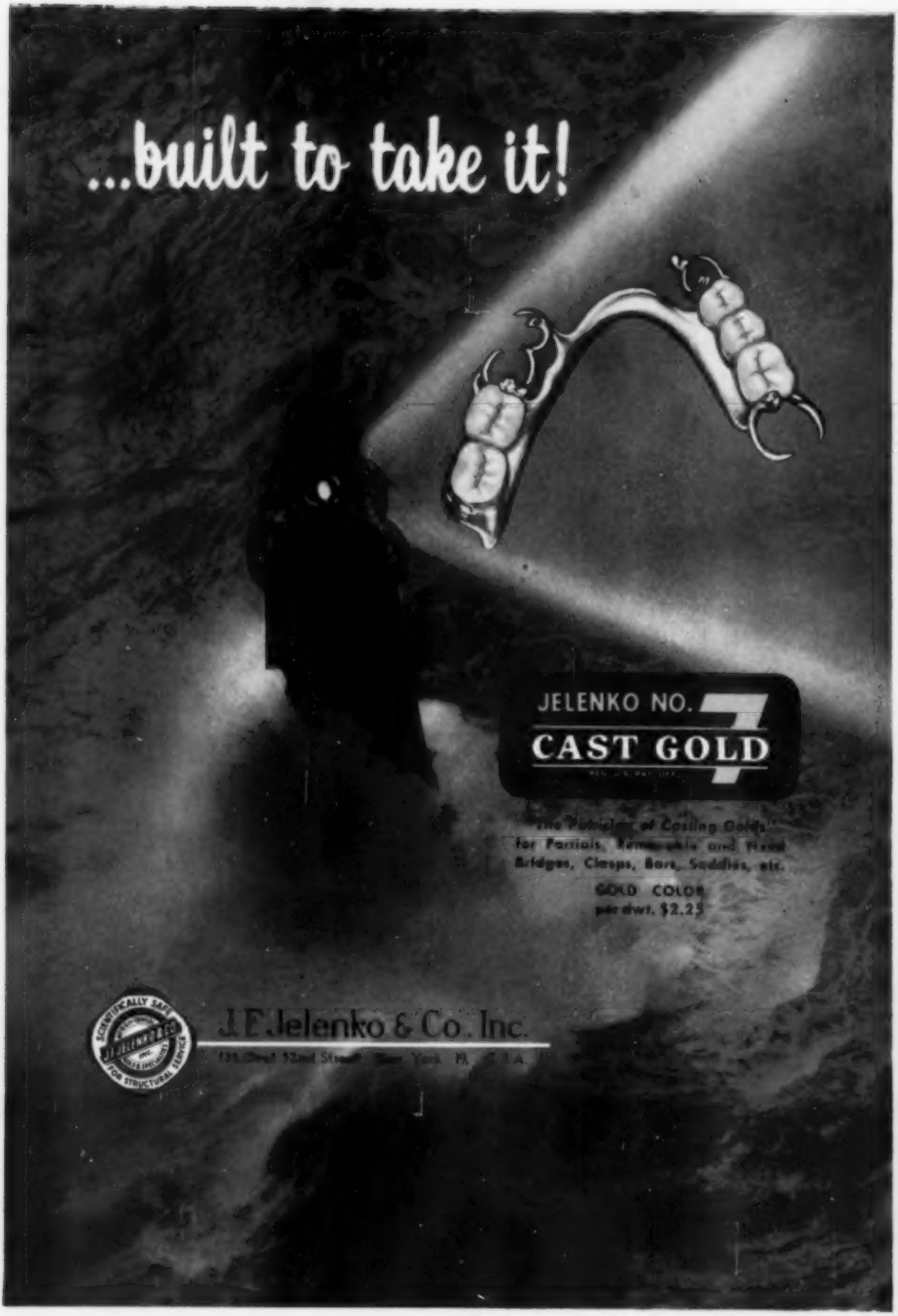
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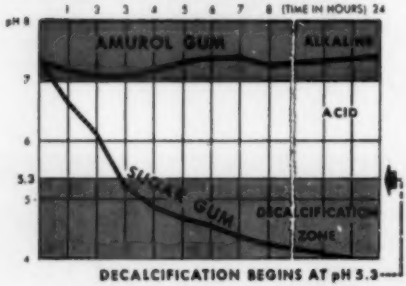

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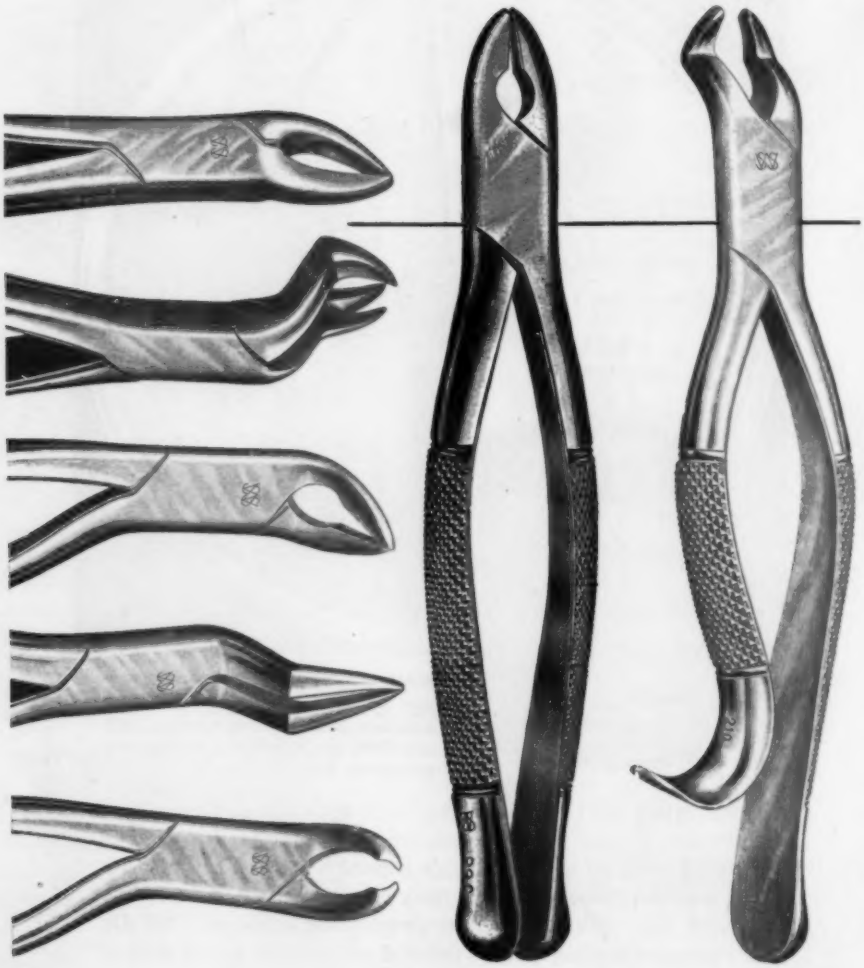

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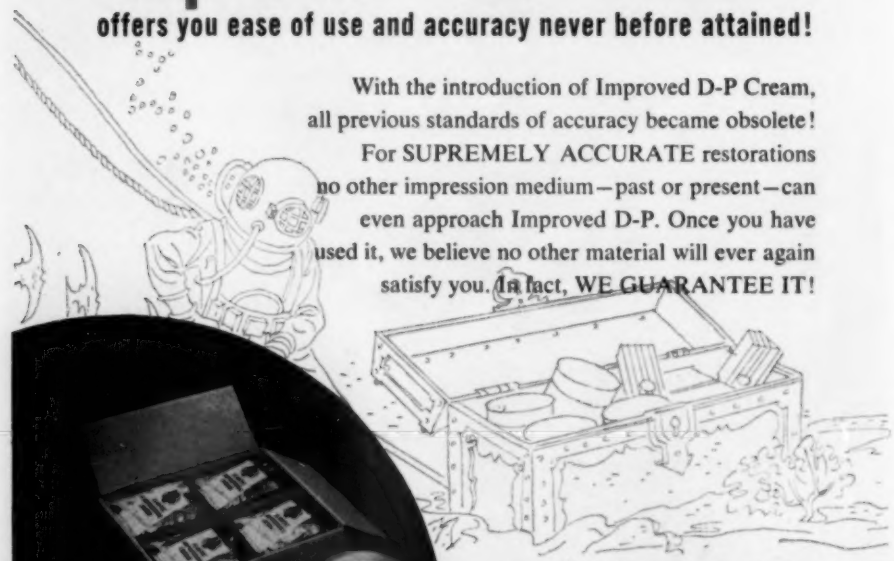

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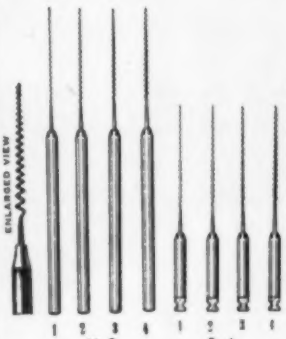

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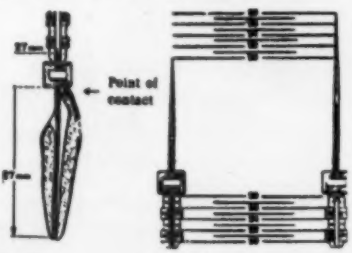

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1. Jolliffe, N.: Recent Advances in Nutrition of Public Health Significance, Metabolism 4:191 (May) 1955.
2. Sherman, H. C.: Chemistry of Food and Nutrition, ed. 8, New York, The Macmillan Company, 1952, pp. 212, 598, 599.
3. Committee on Dental Health, Food and Nutrition Board: Control of Tooth Decay, Washington, D. C., National Academy of Sciences—National Research Council, 1953.
4. Joint Report of the Council on Dental Health and the Council on Dental Therapeutics of the American Dental Association: Sugar and Dental Caries: The Effect on the Teeth of Sweetened Beverages and Other Sugar-Containing Substances, J. Am. Dent. A. 47:387 (Oct.) 1953.

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†Huldt, S., "Factors Influencing the Efficiency of Dental Local Anesthetics in Man.", Acta Odontologica Scandinavica, Volume 11, Supplement 13, 1953.
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Dental health care programs for children

David W. Brock, D.D.S., St. Louis, Mo.

Both the public and the dental profession know that 60 per cent of the incidence of dental caries can be prevented among children if their drinking water is fluoridated. Both the public and the profession know that, among children who do not have access to a fluoridated public water supply, 40 per cent of the incidence of dental caries can be prevented through topical fluoride applications.

The dental profession knows—and the public is learning—that the dental conditions which cannot be prevented can be controlled. Therein lies the greatest challenge to the dental profession. To accelerate state and local efforts to meet this challenge, the Council on Dental Health of the American Dental Association selected "Dental Health Care Programs for Children" as the subject for its Sixth National Dental Health Conference last year. Discussions were devoted to the development of adequate programs and the improvement of existing ones to bring about an eventual reduction in the tremendous backlog of dental needs in the adult population.

Various aspects of dental health care for children were considered—preschool and school programs from the point of view of the educator and of the dentist, size of the problem after children have been placed on a maintenance basis, treatment problems involved in the care of handicapped children, and the impact of group programs on the provision of dental health care. In the discussions of these aspects, two specific requirements were stressed: (1) the need for bringing the nonindigent as well as the indigent child under dental treatment and (2) the role of the private practitioner in effecting better dental health care for all children.

Papers prepared by Doctors Hodge, Castaldi, Waterman, and Ingle and summaries of other essays and panel discussions presented at the Conference follow.

Symposium of discussions presented at the Sixth National Dental Health Conference sponsored by the Council on Dental Health of the American Dental Association, October 15, 1955, San Francisco.

Former chairman, Council on Dental Health, American Dental Association.

THE IMPACT OF GROUP HEALTH CARE PROGRAMS ON MEDICAL PRACTICE

Francis T. Hodges, M.D., San Francisco

What would happen to your presumably comfortable and stable economy were you suddenly to be confronted with a long, serious, disabling illness, plus a bill for that illness of over five thousand dollars? On me the effect would be profound. My income would stop; my overhead would continue, at least until hasty stop-loss controls could partially stem it; and a flood of medical bills would wash away what small reserves I had been able to put aside.

In brief, I would be in trouble. Confined to a hospital bed, viewing my mounting bills with much the same apprehension of a taxicab passenger waiting for the passage of a slow hundred-car freight train. I would be changed suddenly from a secure and solvent man into an anxious student of bankruptcy statutes. And, were I to be discharged from the hospital completely cured, my family could, conceivably, be faced with a far graver financial crisis than would be engendered by my death, since I carry an adequate life insurance program.

It is usually the hardship case of the modestly paid employee—the teamster or the waitress—we hear of, and rightfully so. There is no one, however, immune to the costly drains of illness, although many of us enjoy degrees of security far beyond those of the workers mentioned.

Much is heard today of the staggering costs of illness. They are high, and for a number of reasons. In an inflationary economy, health services and goods keep pace with the general rise in prices, although ratios vary. Physicians' fees, for example, have not kept pace with labor costs, the price of milk or new cars. The physician's share of the health dollar is smaller than it was a generation ago, whereas the dental profession is reported as receiving a somewhat larger segment. The hospitals' share has greatly increased, and the increase has been in direct ratio to the increase in labor costs.

The increasing costs of illness, even though they may not have kept pace with inflation, have helped to focus the impact of sickness on the pocketbook. It is little solace to the man on a limited budget to be told that costly modern medical procedures have reduced the incidence and severity of certain diseases making them less costly *in toto* than they were a generation ago. It is only partial comfort to know that today's shorter hospital stay is often cheaper than hospital confinement in the days of less effectual treatment.

Today's worker is living in today's economy, which is a credit economy. To an ever larger degree, he is buying today what he will use today, and pay for tomorrow. Whether he buys a vacuum cleaner, a car, a home, or a trip to Europe, he can make a token down payment and enjoy a multitude of goods and services long before he has a certificate of ownership.

Credit economy has been shaping medical and dental practices for several years past. This shaping, which began almost imperceptibly, has recently reached alarming proportions. I cannot alter this trend, neither can you, nor can our combined professions. In a democracy, segments of the populace do not divert the tide. They swim with it, or are swept aside by it. The professional man who gives more than passing attention to the alarming possibilities in the present situation must realize that he is part of it, and that he must adjust to cope with it.

In the past, when living was simpler,

President, California Physicians Service.

and when all but a few citizens operated on a cash basis, most people depended for security on a healthy, easily liquefied reserve. The strength of the family unit was the security of that unit. Family security depended on the income of the breadwinner and the nest egg saved from his earnings. Then came life insurance, by which a man without that nest egg could guarantee his family some security from the day of his first premium payment. Contingent on the regular payments of a fixed premium, he was assured that his wife and children would be spared much of the economic tragedy caused by his death. From its inception life insurance has had its critics, some of whom protest that it is immoral to provide protection for dependents on an installment basis and that this unsound principle will undermine the character of the subscribers. Life insurance is a part of credit economy, although at first glance it might appear to be the opposite. The owner of a life insurance policy immediately becomes possessed of that for which he will pay through the years. Through that possession the intangible security of today looms larger even than the tangible, inevitable, return of tomorrow.

As the demands on the income dollar for rent, clothing, food, life insurance, education and recreation become greater, the income earner grows increasingly concerned over the rising costs of illness and over the decreasing segment of his dollar budgeted for those costs. Eating is a necessity, so too is clothing and shelter. Protection must be provided his family in case of death—hence the need for life insurance. The family must have cigarettes and an occasional movie ticket, for life would be drab indeed without some minor pleasures.

Because of these chronic and urgent demands on the family income, many wage earners fail to provide for illness. They rationalize this failure by arguing that they are not going to get sick. Other people become ill. Careless people have accidents. Should some little illness occur, a visit to the physician will cost but five dollars and that can be paid out of pocket without affecting the family budget. Stark reality, however, is changing the thinking and planning of the more thoughtful breadwinners, and their concern is spreading to more people. Union agents must act daily in behalf of some of their members because of illness or accident. Most employers endeavor to offer some type of medical prepayment coverage. And although the individual worker may not be confronted with a $5,000 bill for illness, he knows someone whose future is mortgaged because of such a catastrophe.

Credit economy did not generate the idea of sickness insurance, although extended credit plans accelerated the acceptance of the idea and the desire for it. Devices for advance payment against the costs of disease and injury, however, are not new. Long before Bismarck, thought by many to be the pathfinder of such plans, man strove to find a solution to the problem of meeting medical cost. The efforts in this regard of Kung Fu Tse of ancient China may be cited.

The most potent and oldest of the serious efforts of the medical profession to solve the economies of the medical-care-seeking public may be found in the State of Washington, where excellent bureaus, some of which are now Blue Shield plans, arose because a captive medical profession shook off the tyranny of an all-powerful lumber industry. Before the advent of the bureaus, a large part of the profession in that state was shackled by the lumber companies which employed physicians and dictated the conditions under which treatment could be rendered employees and their families.

The Blue Shield movement was initiated before World War II by the medical profession through the association of a number of the nation's service organizations for the purpose of aiding the pub-

lic to finance — through prepayment methods—the costs of sickness and accidents. Although the Blue Shield plan was inaugurated presumably to avert the trend toward socialism in medicine, it sometimes has been accused of being socialistic itself.

Blue Shield, following the lead of its sister organization, Blue Cross, has grown beyond all expectations. Thirty million Americans now benefit from its provisions. Many of these beneficiaries would be in sore financial straits if they had to defray the costs of medical services on a postpayment basis.

As the present size, and the potentials of prepayment medical plans were not envisaged by the originators of the plan, neither was its comprehensive coverage foreseen. Blue Shield's original contract—a limited, neat, safe, little package—provided the lower income earner, in a broadly based group, a strictly controlled list of surgical benefits. Cautious planners interspersed the benefits with protective limitations, abuse controls and overuse deterrents. Individual coverage was hazardous. Medical benefits were the exception. Fine print served to sober the subscriber who had bought in good faith and enthusiasm. Regrettably, he became suspicious of the proposal after examining the offerings of completely sincere and idealistic leaders of the medical profession.

Those leaders soon learned that the subscriber was interested in far more comprehensive coverage than the original plan offered. He did not desire islets of protection in a vast sea of risks. He was even willing, in a number of instances, to sacrifice the traditional free choice of physician in order to purchase fuller protection for himself and his family. Certain closed-panel types of medical service organizations operate on this basis, although where benefits are adequate, the American citizen greatly prefers to choose his doctor.

Programs for the prepayment of sickness costs have grown to such an extent that a majority of the public now is covered to some degree, in one form or another. More than fifty million Americans are subscribers to the hospital benefits of the many Blue Cross plans. More than thirty million Blue Shield beneficiaries are protected by the 76 constituent plans for physicians' services. The commercial insurance companies underwrite many millions more in a great variety of contracts. Closed-panel plans embrace approximately two million more.

Irrespective of the original reasons for offering the public facilities for the prepayment of medical costs, the people of America have shown that they like to pay their own way and that they are ready and willing to take advantage of the facilities offered. Although today's credit economy may have been a factor in stimulating the vast growth of prepayment medical plans, this method of financing such costs stands on its own merits as good business.

One of the most popular types of prepayment medical care contracts now being offered provides both the Blue Shield and the Blue Cross services, in which varying degrees of medical and surgical coverage are offered by Blue Shield, in the name of its sponsoring physicians, and a fairly uniform type of hospital coverage is offered by Blue Cross for the hospital organizations. By and large, these are service type plans, which guarantee certain medical and hospital services, rather than fixed and limited indemnification. These are plans in which there is participation by the hospital and the medical professions, who, alone, can render the services guaranteed under the terms of the contract. No insurance company can promise these services, nor can it promise free choice of hospital and physician. No insurance company can guarantee more than dollar payment on a fixed scale in accordance with a table of benefits.

The effect on medical practice of commercial insurance companies' health and

accident contracts will not be discussed here. Such contracts are agreements between the negotiating companies and the beneficiaries. They involve the acceptance of no responsibility by the hospitals or the physicians, and bind them in no way. Physicians and hospitals are free to bill the patients in accordance with their usual fees, and they may or may not consider the reimbursement by the company as full payment for services rendered. The company is in the field for the purpose of making a profit, and usually does well.

It is significant that Blue Shield-Blue Cross plans are operated on a not-for-profit basis. In fact, the actuaries and managers of such plans are censured if profits are made.

The impact which this gigantic Blue Shield-Blue Cross dual facility has had on the practice of medicine was never visualized by the originators of the program.

The original purpose of the program was to salvage from the charity clinics, and medical pauperism, the low wage earner, by enabling him to budget a few pennies daily while well, with which to defray the cost of sickness sustained later. The low income earner was protected under this plan but his neighbor in a higher income bracket was not. He too desired the same protection. Today, Blue Shield subscribers embrace a very large portion of America's middle class population, including many executives who insist on their right to the same benefits as their employees. Consequently the number of participants covered is much greater than originally anticipated. In fact, in the State of Delaware, 70 per cent of the populace is covered. In Michigan, over 50 per cent hold Blue Shield-Blue Cross cards. The sheer weight of numbers cannot but affect the practice of medicine in a number of ways.

Another interesting development has been the trend toward greater comprehensiveness of coverage which has resulted from the public's desire for greater degrees of security. Most early Blue Shield plans and commercial insurance policies offered only surgical coverage. Today, a growing number of plans allow home and office visits and other extended benefits. Medical coverage while hospitalized is almost universal now.

Few of the early Blue Shield plans provided protection for dependents. When such protection was offered, benefits were sharply curtailed, in the belief that such coverage was actuarially unsound. This opinion has largely disappeared. Today most negotiators are certain to reject contracts which do not include provisions for family protection.

Pioneering plans invariably offered only group contracts, as it was believed that only by spreading the risk over a large and well selected group could some control over usage be maintained and soundness of the program be assured. Subscription drives thrown open to all individuals would, it was predicted, result in a mass rush for contracts by the lame, the halt and the blind, fatally weighting the rolls of the plan, while the young, robust and well would "stay away in droves." A few hopeful experimenters were not convinced that this would be the case, and they offered individual contracts while their finance officers held their breath. The predicted cataclysm did not take place. Healthy, sound plans which provide individual contracts operate side by side with their group counterparts. The finance officers and the actuaries relaxed and went to work. Not to stop leaks or to plug gaps but to plan lower premium rates and greater benefits. Individual contracts are now being offered by more and more Blue Shield plans.

The amount and the varied types of coverage offered by today's Blue Shield plans are in bold contrast to the sharply circumscribed coverage provided by the first of such programs. Indigents, migratory workers, American Indians, the el-

derly, college students, represent a few of the groups that have proved to be natural subjects for the modern flexible Blue Shield-Blue Cross contracts. And while the officers of a Blue Shield-Blue Cross plan negotiate for coverage of the employees of a corner corset shop, or John Doe and his family, they may simultaneously be negotiating a contract for a nation-wide industry employing hundreds of thousands of workers.

The medical profession conceived and developed Blue Shield as a means by which the public could finance medical and surgical costs easily and painlessly. In doing so, the profession voluntarily took upon itself certain obligations and restrictions. It agreed to render specified services at fees within a restricted range. It accepted the responsibility for the success of the plan, its members underwriting losses that might occur. Frankly, the inauguration of Blue Shield was an innovation for a profession known to be traditionally reactionary. Calamity howlers within the profession forecast imminent disaster for all associated with the undertaking.

To be sure medical practice is not the same as it once was, and prepayment of medical costs has aided in the change. But nothing is ever fixed in a changing world and all change is not necessarily for the worse.

Let us examine some of these changes.

There has tended to be a leveling off of fees. There is more frankness regarding medical charges which formerly, for some reason, were a closely and jealously guarded professional secret. Modern medicine is tending to establish standard fees for standard services—a condition accredited by the establishment of Blue Shield plans. In some communities the establishment of Blue Shield and the concomitant establishment of standard fees has proved embarrassing; largely because the fee scale was too low. Blue Shield is not cut-rate medicine. Once fee schedules are established they become known and are accepted by insurance companies, the public, and even courts, as standard. It is of little avail to protest that they are minimum fees, and that they are for low income people. In those areas in which Blue Shield plans set unreasonably low fees, resentment on the part of the profession resulted and at best only grudging support was given by physicians through a sense of duty. In those communities in which the Blue Shield schedule of fees were in some accord with the usual fees for the community, enthusiastic endorsement by the participating physicians resulted.

Prepayment medical plans are bringing about another interesting development—they are causing charity patients to disappear. In some communities there aren't enough charity patients to serve as teaching material for medical students. Former charity patients are now proudly paying private patients in the waiting rooms of private practitioners. Blue Shield and insurance companies have enabled them to salvage their self-respect and to provide a substantial portion of their physician's incomes. These same patients are seeing, on a far more satisfactory basis, the physicians of their choice—often the same physicians who formerly served them without recompense.

If the economic lift of a five cent an hour raise to a group of industrial workers is measurable, a similar economic benefit to a community must result from the establishment of a Blue Shield-Blue Cross prepayment plan.

Even in communities in which Blue Shield payments to physicians fall below the norm, many physicians agree that the certainty of Blue Shield payments for services rendered beneficiaries of the plan more than compensates for losses occasioned by bad accounts and ignored bills.

Early planners of medical and hospital prepayment programs wanted to remove the barriers that existed between the patient and his hospital and his physician and to establish an easily accessi-

ble road between them. In some communities they actually constructed a high speed four-lane super-highway, devoid of any restrictions. Some of those early highways or prepayment plans were almost destroyed by the heavy traffic. Physicians were confronted with demands of patients to be put in the hospital "because I need a rest," or "my wife's away for a while and I don't cook. Besides you can run a lot of tests while I'm in. Don't spare the expense, doctor, I have Blue Cross." Or "don't order the x-rays while I'm up and about—I'd have to pay for them. Put me in the hospital, so they'll be free." "These are my rights. I've paid for them." It took physicians and patients, alike, a long time to learn that intelligent, not prodigal, use of Blue Shield Blue Cross plans, meant greater benefits, broader service and more realistic fees. Plans in some states have failed because they were considered fair game for raids and blood letting, rather than a valuable asset to patient, hospital and physician.

Prepayment health insurance has placed a third party between the patient and the physician. But that party is not a government employee. In the case of Blue Shield, it is the physician's own representative, whose purpose is to aid, not hinder, the rendering of medical service. Blue Shield plans require some paper work, but less than is required of insurance reports. Blue Shield plans also present certain of the annoyances that occur when someone outside the physician's office is concerned with the affairs within it. But such annoyances are not major.

Most significant are the public relation benefits that have accrued to medicine as the result of Blue Shield programs. Justly or not, medicine fell into some degree of disfavor with the public a few years ago. The medical profession was supposed to be opposed to everything, in favor of nothing, and reluctant to take leadership in the establishment of medical care programs for American families. The medical profession answered by establishing Blue Shield. The public then began to realize that its physicians were concerned over their health problems rather than with their pocketbooks. The advent and growth of this physician-sponsored facility mark a great turning point in medicine's community-mindedness. The acceptance and endorsement of Blue Shield by millions of persons have not been lost on the medical profession. The shape and character of medical practice have been altered because of that acceptance.

Most Blue Shield plans are of the service type. Service is the one major item that an organization sponsored by physicians can offer. Commercial insurance companies can match all other benefits with the exception of benefits resulting from nonprofit operation. A medical service plan has some of the features of a democracy in which there is government with the consent of the governed. The success of such a plan depends on the support of its physicians—those who render the services. A Blue Shield plan must have the hearty endorsement of its member physicians. It must provide wide and realistic protection to its subscribers. It must guarantee realistic payments to participating physicians, and its administration must interfere as little as possible in the normal practice of medicine.

Physicians have come to accept prepayment as a reality, and the overwhelming majority of the profession endorse it. Where there has been opposition to the service type of prepayment medical plan, the objection usually has been caused by the cut-rate or bargain basement type of contract offered. The laborer is worthy of his hire, and good medical service commands a fair fee. Prepayment plans are established to facilitate payment for medical service, not to cheapen its quality. Control of medical practice must remain always in the hands of the physicians and the establishment of efficient doctor-sponsored, service-type Blue Shield plans in all American communities will strengthen

that control. Wary members of the profession who visualized a prepayment health plan as a bureaucracy which would stifle free medical practice now recognize that it is an instrument by which they may retain control of medical practice, and preserve the freedoms which are so essential in good medical care.

The ready acceptance by the public of the offerings of the medical and hospital professions suggests that thus far the surface has been little more than scratched. With a perfectly straight face, a former Blue Shield executive has set up business in Southern California to underwrite prepayment veterinarian service for the domestic pets in that area. Those who claim that medicine, in establishing Blue Shield plans, has unlatched Pandora's box must be shown that actually medicine has rubbed Aladdin's lamp, and that an obedient genie awaits the wishes of the profession to serve the public more effectively.

To date, the genie of the lamp has done little more than idly flex his muscles. His full strength can only be imagined. Not endowed with selfish interests nor ulterior motives, he exists to serve his masters. Whether he succeeds or fails depends on his directors.

The practice of medicine must always be kept on a personal basis. It must be kept on an individual, and a voluntary, basis. It must always be conducted on the basis of public service and with an understanding of the needs and desires of the public.

If dentistry, medicine's allied profession, wishes to explore the possibilities of a prepayment dental care program, there is a wealth of experience, gleaned by medicine, available for guidance. Dentistry can follow the pathway which medicine has had to cut through the unblazed jungles of inexperience. Indeed, dentistry may even be saved from making some of medicine's outlandish excursions into impassable territory. The outlandishness of some of these excursions is obvious now that broader, straighter roads have been established; therefore, it is hoped that dentistry will be tolerant when it follows in medicine's tracks.

Should dentistry find a place in its practice for a prepayment plan, and I see no reason why it should not, members of the dental profession must realize that the public wants such a plan—provided it is just and fair and efficient—and that it can be made just and fair and efficient by the application of hard work and sound principles.

2299 Nineteenth Avenue

DENTAL HEALTH CARE PROGRAMS FOR THE HANDICAPPED CHILD

C. R. Castaldi, D.D.S., M.S.D., Indianapolis

The introduction of the antibiotics and the development of new surgical technics, especially within the last decade, have greatly increased life expectancy. These and many other recent advances in the health sciences have had their most profound effect on the lives of children, especially those with severely handicapping conditions.

Formerly, the dental health problems of such children were of little or no concern because their life expectancy was short. With many of them now living comparatively normal lives, however, the dental profession is faced with the new responsibility of providing necessary dental services for these children. This responsibility should not be carried solely by those who have a special interest in

Supervisor, Riley Dental Clinic, Indiana University Medical Center.

the problem or who have had special training to deal with it. A survey of the statistics[1] on the number of these handicapped children reveals that this is a major dental problem which must be shared in part by all dentists.

In the United States there are approximately 800,000 people under 21 years of age with heart disease, either congenital or caused by rheumatic fever. Perhaps in no other field of modern medicine is there more reason for optimism than in the treatment of these patients. Several recent reports[2,3] have indicated that recurrent attacks of rheumatic fever, a most perplexing problem in the past, can be eliminated almost completely by properly instituted antibiotic therapy. Successful cardiac surgery[4,5] for the relief of cyanotic congenital heart disease is being performed daily throughout the country. Although the majority of these patients can withstand routine dental procedures, there is often some hesitancy on the part of the family dentist to institute them because of lack of knowledge of certain aspects of the disease and the medical management thereof.

In the care of the handicapped child, the most perplexing problem for the dentist is the rendering of adequate service for the patient with cerebral palsy. Not only do these patients exhibit very poor muscular control but, in addition, many of them are mentally handicapped. Some of these patients have only mild involvement, and their dental treatment presents little or no problem for the family dentist. Usually, however, some postgraduate or graduate training is required before the dentist can master the various technics needed to treat all of these patients successfully. There are approximately 300,000 persons in the United States under 21 years of age with cerebral palsy.

Very close behind in numbers are the approximately 275,000 children with epilepsy, many of whom present as complicated a dental treatment problem as do the patients with cerebral palsy.

One of the problems of the handicapped with which the dental profession has always been closely associated is the cleft lip and palate. Long-term research programs still being conducted[6-8] seem to indicate that the time has come for reevaluating the dental needs of these patients, especially with regard to the role of the general practitioner, orthodontist, prosthodontist and pedodontist in the treatment of preschool age children with varying types of clefts.

Sizable numbers of the population are also afflicted with many other forms of severely handicapping conditions such as congenital or acquired deafness and blindness, blood dyscrasias as in hemophilia, severe developmental facial disharmonies, and complicated orthopedic problems such as those resulting from muscular dystrophy and poliomyelitis.

When the entire problem of the handicapped is considered, it becomes clear that most people are handicapped in some small way. The degree of handicap is the all-deciding factor as to whether a person can compete on a fairly even basis with other members of society. At one time it was felt that the severely handicapped should be literally isolated from society. This philosophy is changing, however, and the severely handicapped

1. Lesser, A. J., and Hunt, E. P. The nation's handicapped children. Am. J. Pub. Health 44:166 Feb. 1954.

2. Wannamaker, L. W., and others. Prophylaxis of acute rheumatic fever by treatment of preceding streptococcal infection with various amounts of depot penicillin. Am. J. Med. 10:673 June 1951.

3. McCue, C. M., and others. Comparison of intramuscular benzathine penicillin and oral sulfonamide in the control of rheumatic recurrences. J. Pediat. 47:450 Oct. 1955.

4. Potts, W. J., and Gibson, S. Aortic pulmonary anastomosis in congenital pulmonary stenosis. J.A.M.A. 137:343 May 22, 1948.

5. Blalock, A., and Taussig, H. B. Surgical treatment of malformations of the heart in which there is pulmonary stenosis or pulmonary atresia. J.A.M.A. 128:189 May 19, 1945.

6. Pruzansky, S. Description, classification and analysis of unoperated clefts of the lip and palate. Am. J. Orthodont. 39:590 Aug. 1953.

7. Subtelny, J. D., and Brodie, A. G. An analysis of orthodontic expansion in unilateral cleft lip and cleft palate patients. Am. J. Orthodont. 40:686 Sept. 1954.

8. Pruzansky, S. Factors determining arch form in clefts of the lip and palate. Am. J. Orthodont. 41:827 Nov. 1955.

are becoming accepted as part of society. Therefore, the ultimate goal of the dental profession should be to care for most of these patients routinely in private dental offices. At present, many dentists are not able to do this, however, because of lack of knowledge of certain aspects of treatment. Until the dental profession is well versed in treatment methods, there must be a period of education which may mean that many of the handicapped will have to be cared for in dental treatment centers. After several years, when more information is available and more of the dental profession is trained to work with these patients, however, a decentralization process should take place.

The dental health care of these patients involves many problems which may take a considerable number of years to overcome. Information received from the Division of Dental Public Health of the United States Public Health Service revealed that in a few areas, fairly adequate dental health care is available for all types of handicapped children. In others, because of the excellent work of certain private organizations such as United Cerebral Palsy and the American Heart Association, special attention is being given to one particular type of handicap.[9] In many places, however, very little service is available, and adequate programs are as yet only in the planning stage. It appears that there are many individual but uncoordinated efforts being made. It is necessary, therefore, to bring into focus all of the many factors intimately involved in the problem. Also suggestions can be made as to how these facilities and organizations can be most effectively utilized and coordinated to obtain the best possible result. These factors, facilities and organizations can be listed as follows:

1. Education and physical facilities.
2. Service organizations.
3. State and local dental societies and dental divisions of state departments of public health.
4. National dental organizations (including national dental specialty groups).

EDUCATION AND PHYSICAL FACILITIES

By far the most important problem is the educating of the members of the dental profession so that they are able to provide the necessary treatment. Despite the untiring efforts of morally motivated laymen who are helping to institute a program of dental health care for handicapped children, the programs will flounder unless trained personnel is available. The problem of education is primarily the responsibility of the dental schools. There is general agreement that an adequate teaching program should be centered around a clinic located in a children's hospital.[10] How far the dental schools have come along these lines was indicated in a report by the pedodontic section of the American Association of Dental Schools in 1954.[11] It revealed that only 16 out of 46 schools have such a program in operation. Among those schools which reported an absence of such a program, many replied that there was a genuine interest in the subject but that lack of qualified teaching personnel and proper hospital facilities had to be overcome before programs could be started.

Where these problems are not insurmountable, there should be no hesitation in initiating a program of service and training. An example of such a program that is now in operation is the one at the Indiana University School of Dentistry.

The director of the program should have a full time faculty appointment and, ideally, should be someone who has had considerable hospital training, preferably

9. Dental Guidance Council, United Cerebral Palsy of New York. Personal communication.

10. Losch, P. K. The importance of a hospital program in the teaching of undergraduate, postgraduate and graduate pedodontics. J. D. Educ. 19:182 May 1955.

11. Wilbur, H. M. Trends in the development of pedodontic programs in hospitals. J. D. Educ. 19:201 May 1955.

in the pedodontic field. The physical plant should be in a children's hospital where adequate facilities are available for treating out-patients and in-patients, where complete medical records are available, and where consultation with the medical staff is easily and quickly obtainable.

The training program should consist of internships or formal graduate programs; also, there should be some arrangements for undergraduate teaching. Since there is a growing need for well trained personnel to provide special dental service for children, it seems fairly obvious that a major portion of the clinical program in pedodontic specialty training should be devoted to dental care for the handicapped child. An effective postgraduate program might consist of part-time participation in the clinical activities by practicing dentists who do not have the time or the desire to undertake a complete graduate program but who may spend a day or a half day per week carrying out treatment at the treatment center. There should be a lecture or seminar series at the undergraduate level. This might consist of a review of the medical problems associated with the various handicapping conditions and show the relationship of these medical problems to necessary dental care. Every effort should be made to have the undergraduate participate in the clinical treatment program.

Children representing all varieties of handicap should be treated. Since the technic of providing dental care for the cerebral palsied child is especially challenging,[12] considerable emphasis should be placed on its study.

From the outset of a new program, unless a considerable amount of time is devoted to caries prevention education, the clinic schedule will be overwhelmed because of the recurrent caries problem.

Several treatment centers may be required depending on the population of the state. The second or third centers probably will develop out of the training program of the first. In states where there are both private and state schools, the program need not be limited to the state school if the private school has the facilities and the intention of sponsoring its own program. It should be remembered that the problem of education is a major one and that 65 per cent of all dental graduates are from private schools.

There is some difference between a teaching program concerned with the care of handicapped children and the regular clinical teaching program of most dental schools. In the regular clinical program, the service rendered is secondary to the teaching of students. In setting up a dental service for handicapped children and a teaching center, this situation is almost reversed. Under such circumstances, it would seem permissible to solicit assistance from service organizations for the support of such a program, both for research and fellowship purposes, and perhaps even for the operational costs.

One of the important functions of the treatment center is to serve as a screening center. Since much of the treatment can be carried out at the local level, the director of the clinic should become acquainted with the dental profession throughout the state. This is necessary so that a good referral service can be set up to handle the less complicated problems, and also for follow-up treatment and recall examinations of patients who have had the major portion of their dental needs cared for at the center.

Since this new responsibility comes at a time when the average dentist is already overworked, it seems evident that greater attention should be given to determining how the profession can provide more service per dentist. This also may be the problem of the educators and should be studied to find more efficient methods of

12. Alburn, M. M. Operative dentistry under general anesthesia for difficult patients. J. Den. Children 20:157, 4th quart., 1953.

using greater numbers of auxiliary personnel.

SERVICE ORGANIZATIONS

The most outstanding example of a service organization that is making a significant contribution toward the problem of the handicapped child is United Cerebral Palsy. For some time this organization has been concerned with promoting dental services for children with this handicap. Large sums of money have been contributed for the purchase of equipment, for the establishment of short courses on the care of the children and especially for long-term training programs. This organization has the utmost confidence in the dental profession, and it remains for those who are planning programs to contact the regional director of United Cerebral Palsy and state their particular problem. Other examples of such organizations are the various state affiliates of the American Heart Association, the national Multiple Sclerosis Society and the Muscular Dystrophy Association.

STATE DENTAL SOCIETIES AND STATE DENTAL DIVISIONS

Thus far only the ideal situation has been considered; that is, a program which would have its beginning in a state where there is a dental school which is, or could be, closely associated with hospital facilities. Since all states do not have these facilities, it would seem that the responsible group who might initiate an organized program of service is the state dental society. A committee could be formed to study the problem and meet with the dental staff member of the official state health agency so that recommendations can be made.

No procedure could possibly be outlined that would work in every situation since local problems vary. However, a source of information which is to be highly recommended for preliminary study by those planning a program is a series of *Guides on Desirable Practices in Community Programs for Children with Handicapping Conditions* currently being issued, after several years of very careful study, by the American Public Health Association.

One of these guides, entitled *Dentofacial Handicaps*,[13] lists certain points of reference which could be used for the whole problem of dental care for the handicapped. The guide points out that there should be a statement of the purpose, objectives, and scope of the program; a sequence of steps to be taken to make services effective; decisions as to the number, type, and qualifications of personnel needed, and where funds could be obtained. It would be helpful if information was available on the number of handicapped children in a given area, but this may be difficult to obtain. Other factors that should be considered are:

1. The role of groups and individuals concerned, such as lay and professional advisory committees, official and voluntary agencies such as the crippled children's services within the state and private service organizations, practicing dentists, dental specialists and physicians, and parent groups.
2. How existing services, facilities and community resources could best be used.
3. Where new facilities would be placed, and whether additional hospital beds might be needed.
4. Legislative action that might be needed to secure the best program.
5. Methods of establishing eligibility, fees and rates.
6. Extent of services to be offered and standards to be met.

It will be found that it is impossible to take into consideration all of these details

13. Committee on Child Health, American Public Health Association. Services for children with dentofacial handicaps. New York, American Public Health Association, 1955.

at the beginning of a program. As a program develops, many of the problems can be dealt with when the need arises. It may be well to emphasize, however, that a program should start on a small scale, perhaps even with a minimum of publicity. A good program develops from within, and its successful growth depends entirely on the enthusiasm of those who are directing it. It may well be that in the beginning there will be individuals in certain positions of authority who will look on the program with a great deal of skepticism and perhaps even provide a little opposition. If the service develops along sound lines, these same people are quite likely to become its best supporters.

A very important responsibility of the local and state dental societies is the determination of suitable fees for this type of service. It should be realized that parents or guardians of a severely handicapped child in most instances spend large sums of money for medical treatment long before the child's dental needs are ever considered. Consequently, when dental health care is found to be necessary, many families, even of fairly adequate income, have depleted what financial reserves they have and are forced to look for assistance from crippled children's services within the state. The problem of economics is further complicated by the fact that very few health insurance programs will cover dental care for a severely handicapped child who requires hospitalization.

As pointed out previously, all of the children cannot and need not be treated at the central treatment center. If a program is to be complete, the cooperation of local practicing dentists is necessary. Many times, however, the local dentist is discouraged from assisting in the program not only because of the difficulty of the treatment but because of fee schedules that were set ten or more years ago when the philosophy of treatment as well as economic conditions differed considerably from that of today. These problems are of necessity the responsibility of state and local societies, and it cannot be emphasized too strongly that a survey of fees for this type of service at the local level should be made early in the development of a new program.

Many children with clefts of the lip and palate and many with other developmental facial handicaps are not receiving specialty care because the specialty groups within the state have not set up fee schedules for wholly or partially indigent patients. The Orthodontic Society of New York State is to be commended for its work in attempting to solve this problem.[14]

The last item for which state dental societies and dental divisions of state public health departments should concern themselves with is the arranging of clinical programs at state and local professional meetings so that newer methods of treatment for the handicapped can be described.

NATIONAL DENTAL ORGANIZATIONS AND SPECIALTY GROUPS

The primary responsibility of the national dental groups is to bring to the attention of all members the fact that the dental needs of the handicapped constitute a new and growing problem.

There are, however, certain specific details which require attention at the national level. The problem of severely handicapped children who require hospitalization for dental services should be studied so that a sound policy can be formulated and presented to the various health and hospital insurance programs now in operation.

Also, the various dental specialty groups should include specific reference to the problems of the handicapped in

14. Bushel, A., and Ast, D. B. A rehabilitation program for the dentally physically handicapped child. Am. J. Pub. Health 43:1156 Sept. 1953.

their board requirements, since it is the members of these groups who will be responsible for the treatment of the more difficult cases.

Finally, since children have a peculiar habit of becoming adults, it may be necessary within a short time for the national organizations to concern themselves with the dental health needs of the handicapped adult population.

THE RICHMOND-WOONSOCKET STUDIES ON DENTAL CARE SERVICES FOR SCHOOL CHILDREN

George E. Waterman, D.D.S., Washington, D. C.

Dental care study projects were undertaken in Richmond, Ind.,[1,2] and in Woonsocket, R. I.,[3,4] in order to throw light on the problem of accumulated and maintenance dental needs of school children. The study sites were selected primarily on the basis of relative population stability, the availability of an adequate number of school children, and the interest of the local school officials and state and local dental societies. Initiated in 1946, these long-term studies were cooperatively carried out by the two cities involved, the Rhode Island and Indiana State Health Departments, and the Public Health Service.

The conduct of the studies in these widely separated communities afforded an opportunity for comparing regional differences in dental needs and resources, as well as methods for bringing them into balance. Dental caries experience in Woonsocket was one third greater than in Richmond, and missing tooth rates almost twice those in Richmond. The two school populations, however, had received about the same amount of dental care in relation to need prior to the inception of the projects. The studies consisted of four consecutive treatment series, each of which included an examination, a prophylaxis, topical fluoride applications, and the treatment of all dental defects, exclusive of orthodontic therapy. Eligibility for participation in these projects was extended to all school children enrolled in kindergarten through the ninth grade of public and parochial schools, provided that care was requested by a parent or guardian.

The major objectives of these studies were threefold: (1) to determine the initial dental care needs of two typical school populations, as well as the time and personnel required to service these needs; (2) to measure the time and personnel required to treat the subsequent annual increment of dental defects on a maintenance basis; and (3) to demonstrate whether or not a close and efficient partnership between the dentist and an adequately trained auxiliary personnel can expand significantly the output of high quality dental care.

FACILITIES AND PERSONNEL

Dental clinics were set up in practically all elementary and junior high schools.

Dental director, chief dental officer, U. S. Coast Guard.

1. Waterman, G. E., and Knutson, J. W. Studies on dental care services for school children—first and second treatment series at Richmond, Indiana. Pub. Health Rep. 68:583 June 1953.

2. Waterman, G. E., and Knutson, J. W. Studies on dental care services for school children—third and fourth treatment series at Richmond, Indiana. Pub. Health Rep. 69:247 March 1954.

3. Law, Frank E.; Johnson, Carl E., and Knutson, J. W. Studies on dental care services for school children—first and second treatment series at Woonsocket, Rhode Island. Pub. Health Rep. 68:1192 Dec. 1953.

4. Law, Frank E.; Johnson, Carl E., and Knutson, J. W. Studies on dental care services for school children—third and fourth treatment series at Woonsocket, Rhode Island. Pub. Health Rep. 70:402 April 1955.

Although an occasional clinic was housed in a classroom, the general rule was for the school authorities to provide attractive clinics with good lighting and ventilation. The equipment was transported from clinic to clinic according to the staff's itinerary. Two to four clinics were in operation throughout the school systems on a year-round basis.

Staff personnel for the Woonsocket project included 4 to 7 dentists, 2 dental hygienists, 1 follow-up worker, 1 secretary, and 3 clerks. The Richmond staff included 3 to 5 dentists, 1 health educator, 1 secretary, and 1 dental hygienist. In both instances an average of 1½ dental assistants was provided each dentist. In addition each dentist had the use of two complete dental units. In-service training was furnished the staff in various phases of pedodontics and in the efficient use of auxiliary personnel.

CLINIC ROUTINE

Complete dental examinations were performed with a no. 4 plain mouth mirror and sharp no. 5 double-end explorer. If the precise diagnosis was in doubt, roentgenograms were used. The following information was recorded during each treatment series:

Number of deciduous and permanent teeth erupted and unerupted.

Number of teeth missing because of extraction.

Number of teeth indicated for extraction.

Number of roots remaining.

Number of unfilled carious teeth and the surfaces involved.

Number of filled teeth and the surfaces restored.

Teeth recorded as carious were those which showed actual cavities, no matter how small, as well as deep pits and fissures in which the explorer penetrated with pressure and then resisted removal. Also designated as "carious" were previously filled teeth which required additional filling at the time of examination, as well as teeth indicated for extraction.

A dental assistant recorded the information on the record cards in code to facilitate transfer of the data to punch cards for subsequent processing and analysis. A serial number was assigned to each child for the duration of the study project. A master card index system was maintained to simplify reference to a child's previous dental record.

Once the examination had been completed, clinical treatment was provided to all children whose parents had signed consent slips. During treatment the children received chairside instruction in oral hygiene. The types of treatment included:

Permanent fillings (amalgam and silicate cement).

Restoration of fractured anterior teeth, with full and partial crowns.

Roentgenograms as required during treatment.

Vital partial pulpectomies of permanent and deciduous teeth.

Root canal therapy of permanent anterior teeth.

Extractions.

Treatment of periodontal diseases.

Prophylaxis.

Topical fluoride applications.

Polishing of fillings.

The amount and type of treatment given each child was noted on the record cards. Each dentist and dental hygienist recorded all of their clinical services on daily work sheets. At the end of each ten day working period, these sheets were combined in a biweekly report showing an accurate running account of services performed during the study project.

Since the majority of dental defects in any group of children results directly from dental caries, this report is concerned principally with caries prevalence in two widely separated communities, and the treatment services required to correct carious defects and maintain good oral health. In each community an average of some 85 per cent of the children received

complete care in each of the four series. This represented an average per treatment series of 4,800 children in Richmond and 5,100 in Woonsocket. Approximately 6 per cent of the children received routine care from their private dentists, approximately 10 per cent did not receive care from any source.

INITIAL TREATMENT SERIES

Baseline data from the first series reveal the following comparative dental status at the start of the projects.

Children with one or more decayed permanent teeth: Richmond, 75 per cent; Woonsocket, 84 per cent.

Children with one or more missing permanent teeth: Richmond, 13 per cent; Woonsocket, 22 per cent.

Children with one or more filled permanent teeth: Richmond, 17 per cent; Woonsocket, 20 per cent.

Inasmuch as caries of the deciduous teeth had begun to occur before the majority of the kindergarten and first grade children entered the clinic program, a lifetime accumulation of dental defects in this dentition was in need of repair. Since the duration of the studies was limited, it was mutually agreed that the permanent teeth should have priority in treatment, thus reducing their mortality rate to a minimum. Restorative treatment for deciduous teeth was therefore limited and selective. There was a noticeable increase, however, in the amount provided and a reduction in the rate of decayed deciduous teeth as the studies progressed. For example, the average seven year old at Richmond initially had five decayed deciduous teeth, with only 9 per cent of the group having filled teeth. Five years later in the same age group, there was an average of approximately two decayed teeth, with 43 per cent of the group having filled teeth.

The larger number of children treated at Woonsocket with a slightly higher prevalence rate of decayed teeth, plus the fact that the average annual increment was approximately ⅓ tooth per child greater, is reflected in the time required to complete treatment of the first series. During the 30 months it took to complete the initial series at Woonsocket, an average of 3 hours and 18 minutes of the dentist's time was required to complete treatment for each child, compared with an average of 2 hours and 52 minutes in a 24 month period at Richmond. An average of better than two permanent and deciduous teeth were treated per dentist man-hour in the first series, of which an average of 1½ permanent teeth were filled.

MAINTENANCE TREATMENT SERIES

The first treatment series was devoted exclusively to the correction of accumulated dental defects. The subsequent series represented, therefore, a periodic, or maintenance, servicing of accruing dental defects plus caring for the continuing backlog of dental needs occasioned by the new enrollment of children in school during each series. For example, in Woonsocket during the third treatment series, 1,123 children, or 23 per cent of those receiving clinic care, were newly enrolled children. Somewhat lower proportions of newly enrolled children characterized each succeeding treatment series at Richmond.

The proportion of children with one or more decayed permanent teeth decreased approximately 25 per cent among the groups cared for in the clinics during the last three treatment series. This decrease would have been considerably greater, no doubt, had it not been for the influx of children who enrolled for the first time during the second, third, or fourth treatment series. The reduction in prevalence of dental defects is exemplified by the fact there were 12,000 fewer decayed permanent teeth in the fourth series at Richmond than there were in the first series, even though

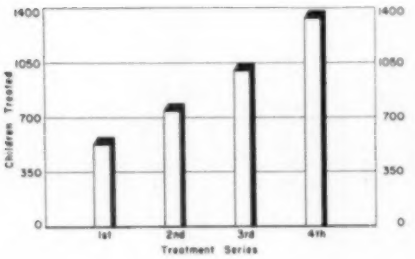

Fig. 1 • Children ages 5 to 16 treated annually per dentist. Four treatment series, Richmond, Ind.

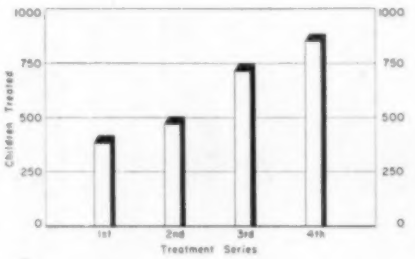

Fig. 2 • Children ages 5 to 16 treated annually per dentist. Four treatment series, Woonsocket, R.I.

nearly 400 more children were treated in the final series.

The continued reduction of the number of permanent teeth indicated for extraction reflected the regularity of complete care during the four treatment series. At Richmond, extraction was indicated for one eighth as many permanent teeth during the fourth treatment series as during the initial series. At Woonsocket the comparable figure was one tenth. The average number of missing permanent teeth per child was reduced by approximately one half. Here again, these figures were influenced by the influx of new children subsequent to the initial series.

With the exception of those of new patients, permanent teeth required only maintenance care during the last treatment series. The influence this exerts on the patient load per dentist for which completed services could be provided annually was evident from the fact that an average of 1,343 and 848 children per dentist at Richmond and Woonsocket respectively had their work completed on an annual basis during the final treatment series, compared to only 530 and 384 children during the initial series (Fig. 1 and 2).

An average of 2 hours and 50 minutes of dentist-time per patient to complete care was required at Richmond during the initial series compared to only 45

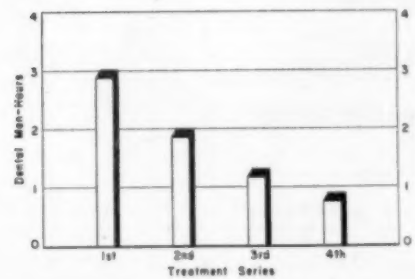

Fig. 3 • Dental man-hours per completed case (patients aged 5 to 16). Four treatment series, Richmond, Ind.

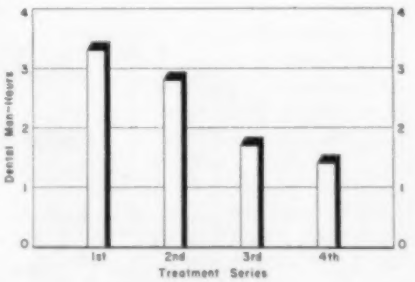

Fig. 4 • Dental man-hours per completed case (patients aged 5 to 16). Four treatment series, Woonsocket, R.I.

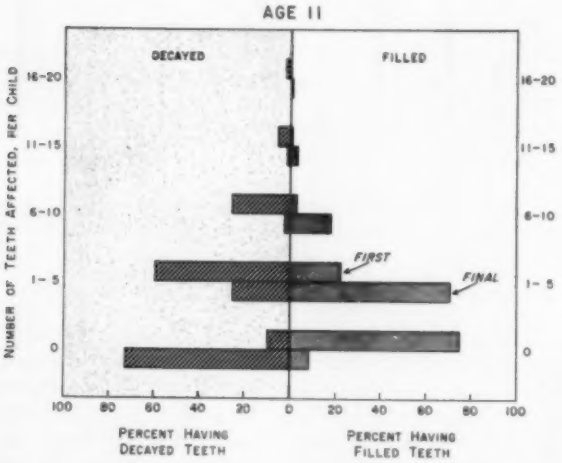

Fig. 5 • Per cent of children with given numbers of decayed teeth and filled teeth, first and final examinations, Richmond, Ind.

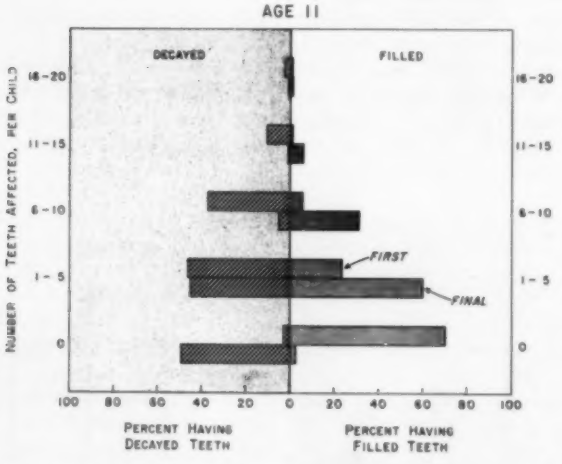

Fig. 6 • Per cent of children with given numbers of decayed teeth and filled teeth, first and final examinations, Woonsocket, R.I.

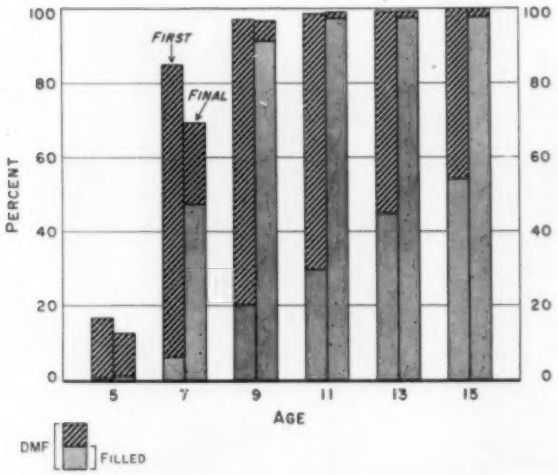

Fig. 7 • Per cent of children having DMF and per cent having filled permanent teeth, first and final examinations, Woonsocket, R.I.; selected ages

minutes during the final treatment series (Fig. 3). Comparable reductions of dental man-hours per patient to complete care occurred at Woonsocket (Fig. 4). Again, the figures include the time required to care for the backlog needs of newly enrolled children who had not been treated previously in the program.

RESULTS

To judge the influence of the programs on the prevalence rates of dental defects on school populations, all children were reexamined at the conclusion of their fourth series of treatment. The increased frequency of filled teeth as a result of regular care is well illustrated in the frequency distribution of 11 year old Richmond children with given number of decayed and filled teeth (Fig. 5). This group is selected inasmuch as at the time the study started these children were six years of age. Dental care of the permanent teeth of this group had thus been available from their time of eruption. In the first examination, approximately three fifths of these Richmond children had from 1 to 5 decayed teeth and one fifth had a similar number of filled teeth. The proportions had shifted by the final examination to 25 per cent with 1 to 5 decayed and 71 per cent with 1 to 5 filled teeth. Similarly, for children with 6 to 10 filled teeth, the proportion rose from 2.5 to 18 per cent in the five-year period, while 11 year olds with 6 to 10 decayed teeth decreased from 25 per cent to 2 per cent during the study period. Similar observations were noted among 11 year old children in Woonsocket, except for a somewhat larger proportion of children with carious teeth in the final examination (Fig. 6).

A comparison of the number of Woonsocket children with filled teeth (Fig. 7) before and after the study presents further evidence of the tremendous backlog of dental defects that had accumulated in a group of children 5 to 16 years of age and the degree of success attained in correcting those defects. For example,

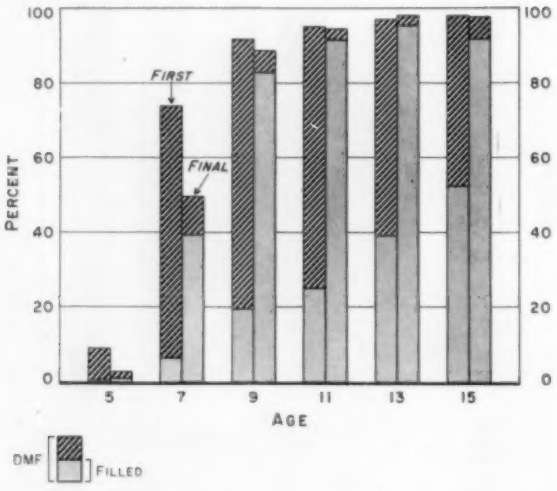

Fig. 8 • Per cent of children having DMF and per cent having filled permanent teeth, first and final examinations, Richmond, Ind.; selected ages

85 per cent of the seven year old children had DMF teeth initially, but only 6 per cent had filled teeth. Seven years later, 47 per cent of the same age group had filled teeth. Although all of the 15 year old children had DMF teeth when first examined, only 54 per cent had filled teeth compared with 98 per cent at the conclusion of the study. The average 15 year old had almost 12 carious teeth and only 2⅓ filled teeth, compared with 3¼ carious teeth and more than 11 filled teeth at the conclusion of the program. Here again, the prevalence rates of carious teeth were influenced considerably by the influx of new children and by the fact a certain number of children refused dental care from any source, or simply failed to have necessary treatment completed. The proportion of Richmond children with DMF teeth before and after the care programs was somewhat less than in Woonsocket (Fig. 8).

The unmet dental care needs that existed initially in the school population at Richmond and Woonsocket were practically all corrected in the periods covered by the studies (Fig. 9, 10). The decayed teeth found in the final examination were in those children who did not participate in the clinic program, or in those for whom it was impossible to complete treatment.

AUXILIARY PERSONNEL

One and one half dental assistants per dentist was determined to be the optimum ratio in the Richmond-Woonsocket studies. There is yet no precise measure of the increase in service capacity which results from efficient utilization of auxiliary workers. In surveys conducted by Klein[5] and by Moen[6] it was estimated

5. Klein, Henry. Civilian dentistry in war-time. J.A.D.A. 31:648 May 1, 1944.

6. American Dental Association, Bureau of Economic Research and Statistics. The 1950 survey of the dental profession. III. The dentist's work week. J.A.D.A. 41:505 Oct. 1950.

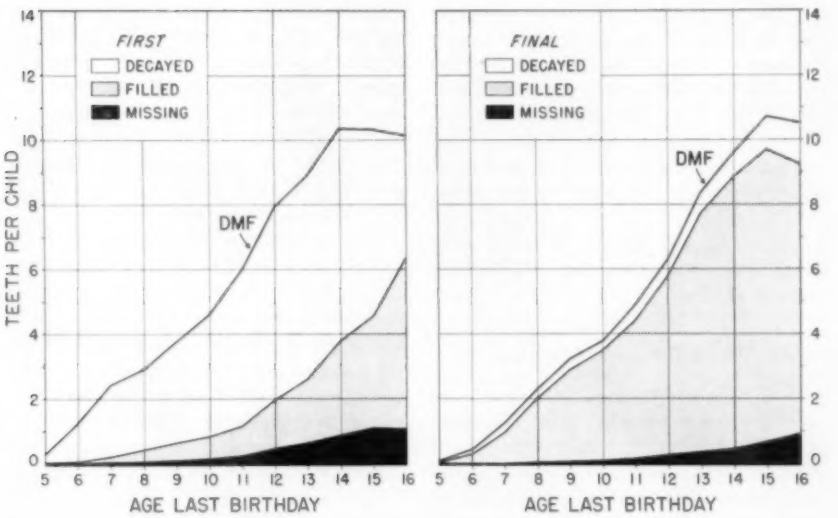

Fig. 9 • Dental caries prevalence in permanent teeth, patients aged 5 to 16, first and final examinations, Richmond, Ind.

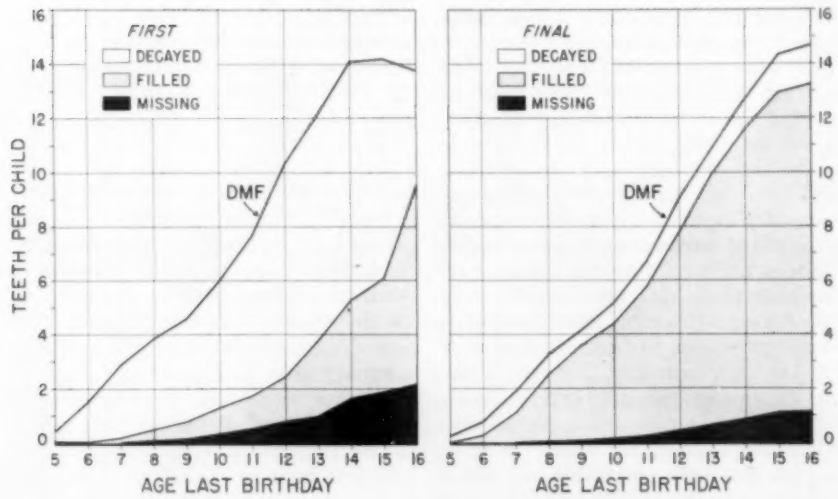

Fig. 10 • Dental caries prevalence in permanent teeth, patients aged 5 to 16, first and final examinations, Woonsocket, R.I.

that the patient load per dentist could be increased from 33 to 75 per cent through the use of trained assistants. It was the general consensus among the dental officers assigned to the Richmond-Woonsocket studies that such estimates were conservative. Continual and concerted effort on the part of dentists and assistants to develop effective teamwork resulted in a large volume of high-quality dental care performed in a minimum amount of time.

CONCLUSION

The Richmond-Woonsocket dental care programs have provided a large volume of accurate prevalence and performance data, all of which again confirm the observation that the basic problem of correcting the carious defects among school children is that of caring for the annual increment. The care programs were well received in their respective cities. School personnel were particularly receptive and cooperative. The programs afforded an opportunity for a large segment of the school population to receive much needed and complete dental care with a minimum loss of time from classroom activities. At the same time, absenteeism as a result of dental emergencies was reduced to practically zero. The programs, in addition to rehabilitating the mouths of most of the school children in the respective communities, no doubt influenced a considerable number to pursue a regular dental care program with their individual dentists after the studies were concluded. Finally, the care programs provided an opportunity for a sizable representation of the dental profession to observe methods of utilizing trained auxiliary personnel. Through such utilization, significantly more dental care services per dentist were achieved, thus extending a health service to a greater proportion of a child population.

INTERNATIONAL LONGSHOREMEN'S AND WAREHOUSEMEN'S UNION—PACIFIC MARITIME ASSOCIATION HEALTH AND WELFARE FUND DENTAL HEALTH CARE PROGRAMS FOR CHILDREN: A PROGRESS REPORT OF THE FIRST YEAR'S ACTIVITY

John I. Ingle, D.D.S., M.S.D., Seattle

All too frequently individual dentists and dentistry have been the recipients of verbal abuse emanating from organized groups, as well as from the various levels of government. Members of the profession have often been characterized as troglodytes living deep in the caves of reaction. Unfortunately, the reactionary label has accurately described the professional groups on more than one occasion. This situation has been allowed to develop because a few geographic components of the professional organizations have not felt the pulse of the changing social structure. More important, these groups have not kept the pace set by the American Dental Association Council on Dental Health and the Central Office of the Association. This is the record! Fortunately, this attitude is gradually changing so that today dental societies are willing, even eager, to discuss dental-social problems with interested groups.

Within the past year a warm feeling of accomplishment has permeated the ranks of the West Coast dental profession with the establishment of a dental care plan

Associate professor of dentistry, University of Washington School of Dentistry.

for children. Eighteen months ago we were presented with a severe socioeconomic problem. Within half this time, the profession proved that facing its responsibilities produces far better results than an ostrich-like, do-nothing attitude. This all began in May of 1954 when representatives of the Trustees of the International Longshoremen's and Warehousemen's Union-Pacific Maritime Association Welfare Fund approached various Pacific Coast component dental societies with a novel plan for a pilot program of dental care for the children of longshoremen.

PROGRAM DEVELOPMENT

The evolution of this scheme and its actual culmination in our dental offices is well worth relating. A description of the program from its inception was given in a recent address by Mr. George Oldham, secretary of ILWU Local 19.[1]

Mr. Oldham stated,

> Our dental program is part and parcel of our over-all welfare program. The contract, negotiated in 1948 between the International Longshoremen's and Warehousemen's Union on the one hand and the Pacific Maritime Association on the other, embraced the principle of a welfare fund to be administered for the benefit of longshoremen . . . and their families in the securing of various health services, as such services could be procured and paid. In 1949 the details of funding were worked out, as well as the principles of administration. The ILWU-PMA Welfare Fund was set up as a separate trust agreement, financed in large part by payments of the employer based on tonnage handled . . . and in part by a 1% payroll deduction of the employee's wages. The Trustees are located . . . in San Francisco, the union being represented by its elected representatives, and the Pacific Maritime Association, which is the organization of the employing ship owners and stevedoring companies, being represented by an equal number of Trustees. The Trustees are responsible for the administration of the funds, and negotiate all contracts for the various services.

Mr. Oldham continued,

> Our welfare program has been an expanding one. The aim has been to care for the "unmet needs" of the workers as money became available. The first step was medical and hospital care for the men themselves . . . plus regular weekly income while disabled. This income was gradually increased. Then life insurance was purchased. Then care for dependents was introduced. Then dependent care was made more nearly equal to care of employees.
>
> In February of last year in a Longshore caucus held in Bellingham, when the discussion of instructions to the Trustees on the allocation of welfare funds came up, [it was determined that] the untouched area of needs-still-unmet was dentistry. Another area of unmet needs was benefits for the younger . . . family men just coming into the industry, men low on the seniority lists.
>
> By urging the Trustees to develop a program of dentistry for children, we were killing two birds with one stone—dentistry [on the one hand, and on the other hand], greater benefits for the younger men who had less occasion as a group . . . to use the other health services.

The Union Welfare staff reasoned that a children's program would be a very constructive thing, that the dental profession would be able to save teeth in this age group, and that the benefits would be more evenly spread over a segment of the union population that had not had occasion to use the other benefits so much.

Mr. Oldham stated that in addition to unmet needs, "the union is very interested in utilization figures; in other words, they want their members to use what they buy." In view of these factors, it was decided at the Bellingham caucus that a pilot dental program for children would satisfy these many requirements. "The Union Trustees of the Welfare Fund persuaded the Management Trustees to go along on a pilot program . . ." and a sum of $750,000 was set aside from reserve welfare funds to finance a one year pilot program in children's dental care.

Immediately, he said,

> . . . the administrative force of the Welfare Fund set to work to uncover sources of supply.

1. Oldham, George. What a group looks for in a dental program. Proceedings of the Washington conference on group dental programs, sponsored by the Washington State Dental Association and the University of Washington School of Dentistry, Seattle, June 25, 1955.

Uncovering sources of dental care was a little difficult, to say the least, for in the first place, the union didn't actually know what we wanted to buy, nor how to write the specifications . . . in order to get someone to put in a bid. How does a longshoreman know what good dental care is? But he wants his Welfare Fund staff to obtain good dental care for his children; on the other hand, the staff personnel are not dentists, so they don't know good dental care either.

The union members and Welfare Fund Trustees realized their own inability to make judgments in dental matters, so they followed a wise course in obtaining competent dental care. First, they educated themselves in this new field, and then they approached the profession. Mr. Oldham stated:

Up and down the Coast, Trustees of the Fund and their employees and representatives talked with dentists, read dental journals, dug into research papers, examined survey reports, talked with everyone who had had or tried to carry on group care.

Two things became discouragingly apparent: first, there existed absolutely no blueprints to follow in drawing up specifications for dental services. Secondly, there existed no place to buy the services that were needed, even if the Trustees knew how to describe them.

"But one very encouraging thing evolved." Remember, this is Mr. Oldham still speaking.

The members of the dental profession themselves showed a real and continuing interest in helping work out the problem of prepaid dentistry for children. The dentists explained the importance of early care of teeth, even the baby teeth, in saving teeth rather than extracting them. They discussed various dental techniques, they drew pictures on the table cloth of the results of poor dentistry. The union members added new words to their vocabulary like deciduous teeth and acrylic fillings and endodontics and pedodontics and orthodontics. More important, the profession itself began to examine ways in which the services could be provided so that the children could have the care they needed and the dentists could be reimbursed according to good dental procedure.

I want to repeat, in all the ports we were encouraged by the interest of the dental profession itself in helping to find a solution to our problem. It was precisely the busiest professional men, those who had the widest experience, the most knowledge, and who, as individuals, have not the slightest interest in increasing their own patient-load, or who were in specialties which would be beyond the financial capacities of the program—it was these eminently qualified professional people who sat in with our Welfare staff and the Trustees and went over the factors involved in children's dental care, and who generated sufficient interest in their own colleagues so that the profession itself, as a whole, would come up with a solution to our problem.

Mr. Oldham further stated that the longshoremen have a reputation for driving a tight bargain in contract negotiations, but he emphasized the fact that this was one time that the union realized that they must not negotiate a contract employing their usual negotiation methods. As he has stated, "that would have been fatal in our relationship with our new friends . . . in the dental profession. I think," he continued, "that if we had made the mistake of going bargain hunting, we would never have discovered that the dental profession and we ourselves had this one thing in common: a genuine interest in providing dental services to children."

The Trustees soon realized that ideal care could only "be provided by those who accepted the recognized standards of the dental profession." Furthermore, Mr. Oldham said,

. . . we sought for good quality of dental care, for as free a choice as possible in the selection of the dentist, for screening techniques on a sampling basis to reassure the quality of care, and in addition, we especially sought the interest of the dental profession because we felt we could not possibly achieve our objective of good quality of dental care without the wholehearted assistance of the profession.

It is with a great deal of pride that I quote Mr. Oldham when he concluded, "We are most happy with the tremendous job that the dental profession has done to help us fill this unmet need. We are enthusiastic about your organization!" This same feeling has also been expressed by the Trustees of the Welfare Fund.

This is the type of public relations for which the dental profession has long been striving. We have a right to be proud that we are praised by this group and not damned by them for our past apathy in this sociological area.

Mr. Oldham's statement that the Trustee Fund employees read extensively in the field of dentistry before approaching the profession is especially interesting. This is well evidenced by the fact that a pilot program in children's dentistry was their initial goal. In 1953 the Council on Dental Health of the American Dental Association strongly recommended this measure.[2] "The wisest course . . . to pursue," they stated, "in entering the prepayment field would be through the establishment of several pilot type programs . . . limited to children, especially in an area where most children can be provided services on a maintenance basis." In addition, this was essentially the recommendations of a workshop dealing with this problem and conducted by the Dental Society of the State of New York in 1951.[3]

It is gratifying to note that the union has followed so closely the recommendations of the Association's Council on Dental Health. And it is also gratifying to note that the Council anticipated the problem and was studying its many facets as far back as 1946.

PRESENT STATUS

At the present time the ILWU-PMA Welfare Fund has contracted with four regional service type dental plans and one coastwise indemnity plan.

In the state of Washington the Washington State Dental Service Corporation is the agent for the service plan. In Oregon the Oregon Dental Service Corporation functions in the same capacity. In the San Francisco Bay area a closed panel clinic operated by Richard T. Naismith and Howard H. Jan provides a service plan for Northern California, and in the Los Angeles area, a closed panel clinic operated by Max H. Schoen supplies a service type program for longshoremen's children. In addition, the Continental Casualty Company provides an indemnity plan in all three coast states. Recently the Bay area dental societies have formed the California Dental Association Service, but as yet this group has not signed a contract with the ILWU-PMA Welfare Trustees; however, I am informed that the Welfare Trustees are pleased that this service association has been formed.

It is interesting to note that a number of solutions to a single problem have arisen. Two service corporations under dental society control have been developed in Washington and Oregon; whereas, in California, closed panel groups outside of direct society control have been organized. This latter situation arose partly through procrastination on the part of some dental societies and partly because the Union Welfare Fund was interested in observing separate operation and the outcome of various types of programs.

Briefly, the coastwise program operates in this manner: In Washington and Oregon, the service corporations are paid $100 for each longshoreman's child between the ages of birth and 15 years who is examined in the offices of the participating dentists. The service corporation in turn agrees to have completed for these children all dental work with the exclusion of orthodontics, space maintenance, esthetics, and posterior endodontics. This means that for some few children, the Union Welfare Fund has paid out $100, but the service corporation has only had to expend the $5 examination fee. No dentistry was needed. These are the instances in which the service corporation

2. American Dental Association, Council on Dental Health. Conference on prepayment plans for dental services. J.A.D.A. 46:77 Jan. 1953.

3. Requirements of a dental health service plan. New York D. J. 17:355 Aug.-Sept. 1951.

gains. On the other hand, some children have received as much as $475 worth of dentistry for the investment for that child of $100. Here the Welfare Fund gains!

This is the application of sound insurance principles to dentistry; spreading liabilities over a great number of people. This program was not arrived at easily. Through preliminary examination of 10 per cent of the longshoremen's children, an experience table was developed which emphasized the enormity of the dental problems. It was on the basis of the Washington and Oregon examinations that the Welfare Fund granted an additional $25 per capita for the children of these two states.

In California, the Welfare Trustees advance $75 per child for each youngster examined by the closed panel service groups in this state. The cost differential between the Pacific Northwest and California is based on the recognized increased caries rate in the northern communities. The California groups agree to complete all dentistry for each child except esthetics and orthodontics, and to maintain these children to the end of the year's contract.

The coastwise indemnity program operated by the Continental Casualty Company plays a minor role in the Pacific Northwest program, but carries about half of the load in California. This plan indemnifies each Washington and Oregon child for a maximum of $100 in dental fees. In California the maximum indemnification per child is $75. In addition, the Casualty Company receives 2 per cent of the prepayment as overhead for each case handled.

This plan has the advantage of saving the Welfare Fund money in that the Fund only pays for the work which is completed on each child up to the amount of $75 or $100 as the case may be. If the fee is only $5, the Fund pays only $5. The program has a serious disadvantage for the parent of the child afflicted with advanced caries. If this child's dental work is completed and the fee exceeds the allowance, then the parent must pay for all costs over and above the maximum allowance.

Within limits, each parent has had the opportunity to choose which plan he preferred. In Washington and Oregon the parents have had a rather free choice of dentists on either the service or indemnity plan so that in these states 96 per cent of the children have been signed up under the service corporation plans.

Conversely, in the metropolitan areas of California, the parents have had a choice between the closed panel service plans, located inconveniently for some, and the indemnity plan with a relatively free choice of dentists. Here, 41 per cent have signed up under the indemnity program.

In the California small ports, however, where there was neither a service nor a closed panel service plan to choose from, parents were all signed up under the indemnity program.

Actually, the union representatives have been quite candid in stating that at the present they prefer the open panel service plans. They are, however, particularly pleased with the high degree of utilization as well as the excellent care enjoyed under the California closed panels.

Two additional requests from the Welfare Fund have been met generally by the profession. First, all participating groups have agreed to a program of random sampling of the completed dental work which is conducted by members of the profession appointed by the service corporations in Washington and Oregon and by the Welfare Fund in California. This has proved to be a very satisfactory arrangement, and in addition, any disagreements which have arisen are arbitrated by the special judicial body, again from within the profession.

Secondly, the Welfare Fund and the union have undertaken a program of dental education aimed at the children

and parents of members. The pamphlets issued deal with the necessity for oral care, caries prevention, diet adjustment, and the keeping of dental appointments. All printed material issued by the Welfare Fund is produced in collaboration with the profession.

STATISTICS OF USE

The first programs, the indemnity plan and the Naismith-Jan clinic, opened in the Bay area in October 1954. The Southern California program was instituted in December 1954. In February 1955 the Washington program and the Oregon program were simultaneously opened.

Since the first patient was seen in October 1954, 6,563 children have been cared for under the plan. This represents a utilization figure of approximately 77 per cent for the service plans and 51 per cent for the insured plans. Total figures for the entire coast are not yet available; however, statistics from the Washington service plan covering only the first eight months of their operation will establish a rough idea of the quantity of dentistry being completed. As of October 1, 1955, in Washington, 1,090 examinations were completed and 1,063 bitewing and full mouth roentgenograms taken, 7,838 restorations placed, 220 pulpotomies completed, 989 teeth extracted, 204 topical fluoride treatments done, 15 teeth treated endodontically, 4 partial dentures constructed, and 327 prophylaxes, in addition to miscellaneous treatments and repairs undertaken.

To date, the Welfare Fund has distributed for dental care $478,313.82 to the participating dentists. Of this amount $411,930.82 has been paid out by the service plans and $66,383 by the Continental Casualty Company. The coastwise average cost per child has not yet been established; however, again referring to the Washington plan, the average cost is $76.95 per child including one recall examination. The average cost of administration runs between 2 per cent and 8 per cent of the expenditures.

Already children are beginning to return to dental offices for the second stage of the program: the maintenance phase. In this portion of the program, the children are re-examined at the end of six months and any needed dentistry is completed at no extra cost to the Welfare Fund. Quite obviously, the greatest expense lies in primary care. The maintenance program will be relatively simple and inexpensive (Washington average: $9 per child) when compared to the great morass of unmet dental care which was presented at the beginning.

I have been told by a Union Trustee that a strong tradition exists for longshore boys to follow their fathers in waterfront labor. If this is true, the Union Welfare Fund is not only caring for the present, but preparing for the future. There is every indication that not only will the program be extended beyond the initial pilot phase, but that, in addition, the age level will be raised gradually so that the maintenance program will follow those youngsters who already have been brought to maintenance level.

CONCLUSIONS

This movement toward prepayment dental care is almost certain to expand in the union welfare field. It is debatable, however, whether dental care *per se* can be sold as prepaid health insurance. A recent report[4] by two long established closed panel dental groups operating in Washington, D. C., and New York City would seem to indicate that adult initial-phase dentistry is so extensive it cannot be "sold" as an insurance risk because of the outrageous initial premium which must be charged. Moreover, it would ap-

4. Proceedings of the fifth annual group health institute sponsored by the Cooperative Health Federation, Seattle, July 27-29, 1955. Chicago, Cooperative Health Federation, 1955.

pear that after this initial treatment is completed, a severe risk no longer exists and the patient then is unwilling to pay yearly premiums when a lack of risk is apparent. This is a very important consideration and will be generally overlooked as prepaid programs are developed.

Whether dentistry suffers or gains under a program of this type is up to dentistry. If the profession is cautious but bold, altruistic but businesslike, cooperative but stubborn in principle; if we are all these things and intelligent as well, we cannot help but be the winner along with those we serve.

SUMMARIES OF DISCUSSION ON PRESCHOOL AND SCHOOL DENTAL HEALTH PROGRAMS

The following summaries, prepared by the Council on Dental Health, provide a round-up of the discussions that were presented on various aspects of dental health care programs for children. One paper on "The Present Status of Dental Health Care in United States Public Schools," presented by Robert A. Downs, D.D.S., of Denver, Colo., Council member, was based on a report of a survey conducted by the Bureau of Economic Research and Statistics. The report of the Bureau, entitled "Survey of Public School Dental Programs," was published in the November 1955 issue of THE JOURNAL OF THE AMERICAN DENTAL ASSOCIATION.

The study would not be complete without consideration of the role of the school in the field of dental health care. Although many specific problems related to school programs have been resolved individually in one community or another, there is need for a program that would be applicable to all communities. An attempt to outline such a program was made through a panel on "The Function of the School System in Dental Health Care Programs for Children." Panelists represented the individuals who are directly involved in the operation of school programs—the school administrator, the school dental director, the state dental director, the city dental director, the dental educator and the private practitioner. Their points of view on the place of the school, the public health department and private practice in the total school program closes the presentation.

ALL DENTAL CARIES IN CHILDREN CAN BE CONTROLLED

In 1955 it was estimated that there were three hundred million cavities in children's teeth—or about seven cavities per child to be treated—and that there would be an additional forty million cavity increase per year if present methods of care and repair continued to be employed. The dental profession must use every known method to control dental disease to combat this most common crippler of present and future generations.

The harm resulting from failure to employ control measures has been demonstrated time and again. A recent and dramatic illustration was the disclosure that the greatest percentage of all rejections for military services during World War II was due to dental conditions. To be most effective, however, control measures must be initiated during childhood.

There are four possible methods for improving the dental health of school children: dental services, fluoridation of communal waters, oral cleanliness and nutrition.

1. Dental services are the responsibility of parents, and, through the combined efforts of the dental profession, dental colleges, hospitals and health departments, care can be made available to all.

Dental treatment should consist not only of the correction of damage to the teeth, elimination of infection or the restoration of the mouth to normal function. It should also embody an educational experience so that both the child and the parent will become more conscious of dental health and learn to protect themselves against the most common disease that human flesh is heir to: dental caries.

2. Fluoridation of communal waters is a project for the entire community and should involve the entire citizenry. No one agency—governmental or voluntary—or profession should assume the complete responsibility for securing adoption of a fluoridation program.

3. The major responsibility for teaching the importance of oral cleanliness belongs to the school and the family dentist. The school should educate and motivate both child and parent to seek dental services at regular intervals. This should be a part of the health education program.

4. Nutrition involves so many groups and individuals that this control measure does not have an immediate possibility of success. This situation does not mean that less effort should be directed toward a better standard of nutrition, but it does indicate that ways must be found to educate parents to control the food intake of their children.

Nutrition should be the concern of the health professions, working together at the national level for the common good of all.

Dental health can be improved to a degree by any one of the four methods suggested, but control of dental disease can only become a reality when all protective measures are wisely employed.—*Charles A. Sweet, D.D.S., supervisor of dental health education, Oakland Public Schools, Oakland, Calif.*

THE PHILADELPHIA STORY OF PRESCHOOL DENTAL HEALTH CARE

The Philadelphia Department of Health, the Philadelphia Health and Welfare Council and the Philadelphia County Dental Society appointed representatives to a committee to organize a workshop to study dental health problems of preschool children and to formulate a feasible program. Two outcomes of the workshop were a summer program by the health department to provide treatment for preschool children from low-income families and an educational program by the council on dental health of the dental society to reach both dentists and lay persons. A complete report of the workshop will be published in a future issue of THE JOURNAL OF THE AMERICAN DENTAL ASSOCIATION.

After a study of facilities available for the dental treatment of preschool children, the committee conducted a survey of dental conditions among this age group and a poll of dentists' attitudes toward, and practices in, children's dentistry.

The total population of 2,050,000 was estimated to include approximately 120,000 children from two to five years of age. There were 1,676 dentists, 14 health department clinics, eight hospital dental clinics, five Mouth Hygiene Association clinics and two dental school clinics. One dental school and the health department reported the number of preschool children treated annually, but it was impossible to obtain data as to the number of children being treated in private offices or by other community agencies.

The percentage of children requiring treatment was found to increase with age. For example, 20 per cent in the two year

old group required treatment, 52 per cent in the three year old group, 65 per cent in the four year old group and 67 per cent in the five year old group.

Among the five year old children, the number examined in each of the sampling groups was sufficient to make valid and significant comparisons. The def rate (decayed, indicated for extraction and filled deciduous teeth) per child, the percentage of children with one or more def teeth and the percentage of children with six or more def teeth were highest among clinic patients and low-income "nonpatients" (children examined in kindergartens, nursery schools and housing projects) and lowest among the private-office patients and high-income "nonpatients."

Analysis of the f: def ratio (filled) provided some information concerning the number of dental defects being treated in preschool children. Private-office patients showed an f: def ratio of 42.3; high income "nonpatients," 35.1; medium-low income "nonpatients," 12.1, and clinic patients, 7.5. It was amazing to learn that only 35 per cent of def teeth among high income groups had been filled.

The report on "attitudes of dentists" reflected little enthusiasm among dental administrators of community programs and among private dentists for treating preschool-age children. Most of the dentists who were graduated prior to 1940 and dentists treating children in low-income areas seemed to be providing less than adequate dentistry for children two to five years of age.

When the new dental section in Philadelphia outlined in its broad program of preventive dentistry the need to study the dental problems of the preschool child, the cooperation of the public health nurse was requested. It was felt that much of the success of a dental program for preschool children would depend on the activity of public health nurses who work with families.

During June, July and August 1954, children two to five years of age made 990 visits to the health department's dental clinics. During the same months in 1955, this age group made 4,616 visits, an increase of more than 360 per cent. In 1954, 12 per cent of the visits during the summer months were made by children of preschool ages. In 1955, 52 per cent of the total visits were made by this age group. This tremendous increase in the number of visits by children under six years of age indicated that the nurses had a definite role in stimulating clinic attendance among this age group.

The public health nurse, having established the family as her nursing unit, can find ways to include dental health education in family health teaching. Her responsibilities actually include not only motivation of the family to accept a dental appointment but also development within the family of an appreciation of the value of prevention.

In addition to disseminating general dental health information, the public health nurse can supplement instructions, interpret findings and help families carry out the recommendations of the dentist. This latter function has not been sufficiently explored by the dental profession. It may be that public health nursing, itself, has been slow to recognize its potential in helping the dentist as it has aided the physician.

The educational program of the dental society had two objectives: (1) to inform the public of the dental needs of preschool children and (2) to stimulate the interest of dentists in preschool children.

Such leaflets as that of the dental society's Council on Dental Health, *Now Is the Time for the Child of Two to Five* and the health department's *Two Birthdays to Remember* were distributed by both agencies to increase interest in the problems of the preschool-age group.

To achieve the dental society's second objective, the Council organized morning meetings in hospital dental clinics to

discuss and demonstrate children's dentistry. Neighborhood dentists were invited to these sessions.—*Jacob M. Wisan, D.D.S., M.P.H., chief, Dental Health Section, Philadelphia Department of Public Health, and Madelyn N. Hall, R.N., M.A., director, Division of Public Health Nursing, Philadelphia Department of Public Health.*

PANEL: THE FUNCTION OF THE SCHOOL SYSTEM IN DENTAL HEALTH CARE PROGRAMS FOR CHILDREN

Introduction by Moderator • Nearly every individual in a community has an opinion as to what the school should teach, how it should be taught, to what extent its facilities should be used for community activities and various other related and unrelated questions. Persons concerned with improving the dental health of children are no exception. The purpose of the following discussion was to provide the opportunity for an exchange of ideas that would lead to sound recommendations regarding the function of the school system in dental health care programs.

With the increasing stimulation of dentistry for children, the area of pedodontics in education is assuming a more and more important role, both in the preparation of the dental student so that he will devote more and more of his practice to pedodontics and in the development of the pedodontic section of the dental school as a resource for child dental health care.

Whereas the development and operation of school programs for children's dental health care are of prime importance to the solution of many of the problems associated with children's dental health care, attention must be focused ultimately on the actual provision of the dental services required. The main responsibility for these services lies with the private practitioner. All realistic program planning, then, must center around the ability of the private practitioner to handle the loads identified by the programs. Any program in which the problem of dental manpower is not taken into account must ultimately fail.—*Byron W. Bailey, D.D.S., Box 30, Hanover, N. H.; member, Council on Dental Health, American Dental Association.*

Viewpoint of the School Administrator • There are four areas that should be considered by the school administrator in organizing a dental health program in a school system.

The first area encompasses the routine dental examination and the dental service to be provided by the school system. Examinations, to be meaningful and effective, should lead to dental care when it is needed. Examinations should be regular, careful records should be kept, and teachers should be informed of the children who need dental care.

The second area relates to parent counseling. The individual attention afforded by a conference with the parents on dental needs of the child is the best of all motivating devices. Such conferences not only provide information to parents and children about the need for systematic visits to the dentist, but they also help the school dentist in determining who should be provided with dental service by the district. When a face-to-face conference is impossible, a telephone conversation is preferable to a note. There is no substitute for immediate two-way communication.

The third area has to do with the dental care of the handicapped child. For children who are mentally but not physically handicapped, the procedures differ little from those used with normal children. Dental health habits will be more difficult to form, but the procedures used in examination, service and counseling will be similar. More counseling needs to be done with the parents, of course, than is the case with normal children. If children are physically handicapped, trans-

portation has to be provided for the patient or for the dentist and his equipment. If the number of handicapped children in a district is large, the budget for dental care will need to be larger because handicapped children require more time in all phases of dental health care.

The fourth area involves the need for consideration of the classroom and school environment that will foster good dental health. The classroom teacher plays the most important role in this area. For example, attention to diet can be achieved in a variety of ways. Arithmetic classes can work on diets as studies in ratio and proportion. Art classes can make charts and posters of attractive and healthful meals. Music classes can compose and sing songs about the care of the teeth. Slides and films can be used in health classes to show how good teeth are important in living and learning. Bulletin boards, table displays, cabinet displays, health stories, dramatic plays about teeth are all good technics for creating an environment that fosters good dental health. Diets without high sugar content should be emphasized by teachers in the primary grades.

The provision of dental services in a local school system raises some fundamental questions. If the school board decides that dental service should be provided, how should it be done? To whom should dental service be provided? Should there be a charge for this service? If a charge is to be made, how much should it be? If private service is to be recommended for some and school service for others, who should determine the students that will be provided with school service?

In Palo Alto, it is believed that dental service should be offered in the school system. The Palo Alto school board has provided dental service for a quarter of a century. The school dentist determines who should receive school district service and who should be recommended for private dental service. The decision is generally based on the parent's ability to pay. A father with six children who is on an income of $300 a month or less is usually as much in need of help in providing dental service for his children as is the father on relief. The local school dentist has met regularly with private practitioners to establish a screening program and to arrange a fee schedule for school dental services. It is the policy of the school board that a small fee be charged for school dental service, primarily for the purpose of preserving the dignity of the individual parent. The small fee also helps to defray the cost of materials used in the treatment program. The school district has no budget for orthodontic care or other more costly dental services, so it has attempted to obtain funds from service organizations and other groups interested in child welfare and health. At the present time, the major portion of the budget for dental service is spent in the elementary schools for two reasons: emphasis should be placed on dental health during the early habit-forming years, and, although the dental service program should be continued during the time the child is in the public school, the rapid growth in the school system taxes the budget in all service areas.—*Henry M. Gunn, Ed.D., superintendent, Palo Alto Unified School District, Palo Alto, Calif.*

Viewpoint of the School Dental Director • It is desirable for a school system to have a dentist as supervisor of dental health education. He can participate in the development of the general health education program, serve as consultant to the directors and supervisors of elementary and secondary instruction, act as a resource person to procure and prepare specialized instructional materials on dental health and assist all others who may be associated with any learning experience of pupils, such as the director of the school lunch program.

In addition to his numerous educa-

tional responsibilities, the dentist serving on a school staff may examine pupils who have been referred by teachers, principals, school nurses and school physicians because of serious dental health problems. He may interpret the dental problems and assist the pupils in obtaining necessary dental services from private practitioners or institutions that render dental care within the community or state.

The school dentist can work with groups of parents, such as the parent-teacher association and other community organizations to eliminate parental apathy and to encourage the adoption of proved public health measures, such as fluoridation of the water supply. He can work with the appropriate dental society committees in the development of plans to make dental services available to the community's entire child population.

The key person in implementing the school health program is the teacher, since she must assume the major responsibility for health instruction. Because of her lack of specific training in dental health education, the classroom teacher needs help. Inservice training for teachers and adequate resources will do much to improve the dental health education program. The dental association can be of great assistance and certainly should become interested in school health programs.

Nowhere in the American way of life does the adult population appear more hypocritical than in health teaching and health practices. To bring about a change in the next generation, health education must be accentuated in all instructional programs from kindergarten through college.—*Charles A. Sweet, D.D.S., supervisor for dental health education, Oakland Public Schools, Oakland, Calif.*

Viewpoint of the State Dental Director • One of the most important responsibilities of a state dental director is to create a climate favorable to dentistry and dental health throughout the state's educational system. This favorable climate must be in the classroom, the school nurse's health room, the principal's office and the superintendent's office. It should pervade the state department of education at the state capitol and the various state teacher training institutions. If the classroom teacher is not interested in dental health, any program of dental health connected with the schools breaks down right there.

Where to start creating a favorable climate? Ideally, according to some persons, in teacher preservice training at teachers' colleges. The state dental director attempts to have such training introduced into these colleges. In addition, he endeavors to get dentistry represented in teachers' inservice education programs. He works with school administrators' groups, with school nurses, with physical educators, with health department personnel, who in turn work with schools. He works with the state department of education on health curriculum guides; on broad general policies, based on sound education and public health precepts, which will serve as helpful guides for the development of local programs.

The state dental director knows that the relief of pain and infection in children has top priority, and that policies and provisions for care of dental emergencies must be developed in cooperation with school people—broad general policies on a state-wide basis which can be modified and tailored to fit local situations. He tries to see that dental care programs for children are organized with school people on an incremental maintenance basis rather than on a basis of a filling here and an extraction there. The Richmond, Woonsocket and Sturgis dental care studies have all demonstrated the soundness of this approach and have helped to convince school people of the reasons for it.

The state dental director is concerned that dental care programs involving

schools reach downward to include the children of preschool age and upward to involve the parents. Hence, the state dental director works with another statewide group, the state parent-teachers' association.

The best local resources to which to turn are the local dentists, but often they are overlooked. For example, a survey of all the practicing dentists in New Mexico showed that a surprising number had never been asked to participate in a school dental program. Thus, one of the responsibilities of the state dental director is to see that dentists and the dental society are involved in school health programs—one way is through the appointment of dentists as members of or consultants to school health councils. Any school dental program is doomed to failure without the cooperation and active participation of dentists.

The state dental director has the responsibility of stimulating continuing education programs in dentistry for children, including crippled children. He promotes workshops and conferences where school people and dentists can sit down and work out their mutual problems. He works with the dental schools in his state to see that future dentists receive instruction in dental public health.

The state dental director should understand the attitude of school people concerning outside health specialists and should impart this understanding to the dental profession. In general, when working with schools, dental personnel should restrict their educational activities to the chairside, to parents and adult groups, and to consultation services with the teacher. They should not enter the classroom unless invited and unless the students are prepared beforehand.

Most state dental directors are placing major emphasis on prevention—now that dentistry has fluoridation as a real public health weapon against tooth decay. They realize, however, that fluoridation is not a "cure-all" and that dental disease will continue to be a problem for some time. *—David F. Striffler, D.D.S., M.P.H., director, Division of Dental Health, New Mexico Department of Public Health, Santa Fe, N. M.*

Viewpoint of the City Dental Director • A city-wide dental program functions best when all health, welfare and education agencies collaborate and when a community-minded dental society assumes an important role in its implementation.

In Philadelphia, three official and three nonofficial agencies and groups function cooperatively. Public schools, parochial schools and the health department comprise the official members of the coordinating group; the Philadelphia Health and Welfare Council of the Community Chest, the council on dental health of the Philadelphia County Dental Society and the Philadelphia Mouth Hygiene Association, the nonofficial representatives.

The council on dental health accepted the invitation to assume the responsibility for coordinating the activities of the agencies. As a result, the following achievements have been attained: (1) fluoridation of the public water supply; (2) surveys of community dental programs, (3) dental surveys among preschool-age children, (4) establishment of a Council of Hospital Dental Administrators, (5) development of regional and neighborhood meetings on children's dentistry to stimulate the interest of local dentists in this field, (6) organization of regional citizens' dental health committees and (7) designation of professional standards for the health department's dental care program.

In both the public and parochial school systems, programs are developed in such spheres of action as (1) the conducting of dental inspections of first, third, seventh and eleventh grade school children, (2) the performing of prophylaxes

and the presentation of classroom and individual instruction in oral hygiene, (3) the compilation and interpretation of data obtained from these inspections, (4) the determination of areas that require emphasis, (5) the institution of follow-up programs to motivate the correction of dental defects, (6) the utilization of all school and community resources for dental health education programs, (7) the participation in the formulation of policies and procedures for the health department's dental care program, (8) the provision of space in school buildings for dental clinics established by the health department, (9) the assigning to school nurses of the responsibility of selection and referral of school children to dental clinics, (10) the conducting of an annual health institute to inform administrative, medical, dental and nursing staffs of dental health problems and activities, (11) the organization of joint inservice training for school and health department personnel involved in dental programs and (12) the establishment of a course in a vocational school for training dental assistants.

In Philadelphia, those in authority have been convinced of the advantages to be gained by pooling all the resources of the community. In some communities, the fear of losing authority and uncertainty as to who should accept the leadership for coordination have hindered the formulation of plans for unified action. —*Jacob M. Wisan, D.D.S., M.P.H., chief, Dental Health Section, Philadelphia Department of Public Health.*

Viewpoint of the Private Practitioner • Although a dental health program for children can be initiated by any interested individual or group in the community, the cooperation of the schools, the dental society and the public health agency is necessary if the program is to be effective. In three areas, particularly, have schools an important responsibility: education, prevention and nutrition.

Schools can augment their educational programs through the use of instructional aids such as films, slides, models and posters, for classroom instruction by teachers and for inservice training of teachers. They can distribute dental health education materials which the pupils can take home for their parents to read. They can promote home care by conducting hygiene instruction periodically in the classroom.

With regard to prevention, schools can support fluoridation if this caries-preventive measure becomes an issue in the community. Another phase of prevention is the protection of youngsters from injuries in football, basketball and other physical education activities through the use of face guards or mouthpieces. Parent-teacher associations should insist on the use of such protective equipment.

To promote dental health as well as normal growth and development of children, schools should practice as well as teach good nutrition. For example, they can eliminate from school premises machines that dispense candy and sweetened beverages. Further, the teachers can instruct children in how to select their lunches intelligently.

Schools should see to it that the results of dental examinations are made known to the parents and to the dentist, and there should be a follow-up procedure to encourage the parent and child to obtain any dental treatment needed. To facilitate children's visits to the dentist, schools should cooperate in an excuse system whereby a child, whenever necessary, may be released from school for dental treatment.

By cooperating in the foregoing types of activities, schools can help to safeguard and improve the health of the public through helping the children from preschool age upwards.—*William P. Humphrey, D.D.S., 390 University Boulevard, Denver, Colo.*

Hartford's preschool dental program

Leonard F. Menczer, D.D.S., M.P.H., Hartford, Conn.

Since dental caries is a universal disease and a universal problem, it is only through caries prevention and control that this disease can be contained. Because caries activity is greatest in children, the problem should be attacked at this age level, starting, preferably, with the preschool child.

Approximately 10 per cent of the population in the average community is made up of preschool children, aged two through six. If the present dental manpower could and would give this preschool group complete dental treatment with subsequent routine maintenance service, and each year added to this group the children who become two years of age, there would be few dental cripples when these children reached the late teens or the years beyond. Unless this type of program or a comparable program is initiated, or unless dental caries is eliminated through preventive measures, the number of dental cripples in this country will grow increasingly greater.

Though many communities make dental care available to the preschool child through public or privately endowed clinics, this service is usually incidental to a larger program of treatment for children of school age. The Hartford Health Department, however, has developed a public dental health and clinical program which is devoted solely to the dental needs of the preschool age group.

PUBLIC HEALTH PHASE

The Hartford Health Department's program annually reaches the parents of every three year old child, through a health education letter, attractively decorated, and mailed during the month of the child's third birthday. Approximately 4,000 such letters are mailed each year. This letter stresses the importance of early dental care and the need for periodic visits to the family dentist, adequate diet, the elimination of sweets, the desirability of toothbrushing immediately after eating and the need for fluoridation. This letter is designed to motivate parents to seek dental care for themselves as well as for their children.

This initial letter is followed by a second message which is distributed annually to all public and parochial kindergarten children late in each school year. This message calls the parents' attention to the importance of the first permanent molars and to the need for early treatment of developmental defects and carious lesions. In addition it repeats the information contained in the first letter.

In addition to these efforts, each nursery school, day-care center, and Sunday School is either visited or written several times during each school year in an attempt to familiarize the preschool

Public health dentist, City of Hartford health department.

child, his parents and his teachers with the desirability of good dental health and the steps to be taken to preserve it.

Finally, through talks to professional and lay groups, through the use of mass media, and through actual demonstration of preschool dental treatment in the health department's clinical facilities, the community as well as the individual parent is made aware of the importance of early preventive measures. Every effort is made to apply practically the appropriate technics of learning through all the media of communication available.

CLINICAL PHASE

The preschool clinical program operates in conjunction with the Well-Child Conference of the Hartford Health Department. Its purpose, like that of the Conference, is to provide a dental program for well children of low income families as an additional means of improving child health.

Essentially, the clinical program consists of four phases:

1. Dental health education
2. Prophylaxis and examination
3. Topical fluoride applications
4. Dental correction

During the calendar year of 1954, 2,455 individual patients were treated in 9,420 patient visits.

Weekly lists of new patients are received from the Well-Child Conference. Every child, on reaching two and one half years of age, is referred to the dental facility. On receipt of the child's name, an appointment is made within a week to ten days. At the patient's first visit, a medical history is obtained from the parent, and significant medical data is recorded on the child's record card. After an introduction to the personnel, surroundings and equipment, the child is given a dental prophylaxis, dental examination and the first of four topical fluoride treatments. At the first of these visits, the dental hygienist explains the purpose of early dental care and the value of topical fluorides. During the second visit she discusses the relation of nutrition to dental health and especially the harmful effects of sweets. At the third visit she gives instruction in toothbrushing and mouth hygiene including instruction in the use of dental floss. The fourth visit is used for review.

By providing dental education as well as dental service, each visit is made to serve a dual purpose.

If the child is too young, either because of chronological age or emotional development, to cooperate with the dentist, dental services are postponed for three months, at which time treatment is again attempted.

Dental service is provided in three treatment rooms, two of which are staffed by full-time dental hygienists conducting the preventive aspects of the work. The third room is staffed by a full-time dental assistant and ten part-time dentists, who also conduct their own private practices. The doctor's schedule is arranged so that operative services are provided on a full-time basis just as is the preventive work. The clinic hours are from 9 A.M. to 12 noon and from 1 P.M. to 4 P.M.

On the completion of the preventive phases of the program, the children needing restorative work are referred to the restorative clinic where they receive weekly appointments until all necessary work is completed. Weekly appointments are scheduled for the same day and hour which reduces the number of each child's visits and also the number of forgotten appointments.

Complete restorative service is provided including pulp capping, amalgam restorations, extractions and space maintainers. The child sees the same doctor each week so that, psychologically, his repeated experiences are as pleasant as possible. Thus, the treatment received by the child in the public dental facility is almost identical to that which he would

receive in the office of a private dental practitioner.

Children not in need of restorative work and children whose restorative work has been completed are recalled routinely every five to six months for follow-up supervision until the eruption of the first permanent molars or entrance into the first grade, whichever is later. At this time, the second series of topical fluoride treatments are given to provide further protection to the deciduous teeth and, equally important, to give initial protection to the newly erupted first permanent molars. All developmental defects in the first permanent molars are then treated (prophylactic odontotomy) and all carious lesions corrected. The child then becomes ineligible for further care.

As a final follow-up procedure, approximately six months after the child becomes ineligible, his parents receive a dental reminder form stressing the need for continued periodic care and urging that the treatment be obtained from a dentist in private practice or at another public dental facility.

All preventive and restorative treatment is scheduled on an appointment basis so that patients arrive at intervals throughout the day. Not only is this good office management, but more important, the children are ushered into the operatory promptly on their arrival. Thus they do not experience the fatigue of waiting which might intensify their apprehension regarding dental service. An attractive waiting room with children's furniture, toys, dolls, tropical fish and recorded music aids in the child's pleasant adjustment to his clinical experiences, thereby making dental therapy more acceptable.

OBJECTS OF PROGRAM

From both a public health and clinical viewpoint, the objects of this program are to:

1. Arouse a mouth hygiene consciousness in the community for the preschool age child.
2. Create a demand for better dentistry, especially for young children.
3. Demonstrate the possibility of preventing or diminishing dental diseases through early care supplemented by health education.
4. Emphasize the preventive side of dentistry rather than corrective side through the application of early preventive and restorative measures, which thereby diminishes the need for future restorative dental work.
5. Provide a training center in preschool dentistry for recent dental graduates. Each year, each dental graduate who intends to practice locally is invited to work at this clinic one session a week for at least six months. This affords him an opportunity to acquire experience in child management; to learn to operate from a seated position as an operating stool is available and everyone is requested to use it; to learn the value of a properly trained assistant and how to utilize her services effectively and, finally, to be exposed to methods and technics of pedodontics and child management that he may not have acquired at dental school.
6. Demonstrate the most economical method of carrying on the type of dental program which seems to be required under present day conditions for indigent groups.
7. Make dental service available to indigents.

OBSERVATIONS

There is very little data available on the dental needs of preschool children—specifically, def rates, percentage of preschool children in need of dental care, number of visits for completion of initial and maintenance needs, and the number of children in need of space maintainers. Tables 1 to 4 may help to shed some light on these matters. Dental findings in

this group, however, are not necessarily representative of all preschool children since these children (1) came from families in the low income bracket and (2) the parents volunteered for the service. These two factors, however, may not be sufficient to change the over-all picture markedly.

Table 1 illustrates def rates and percentage of children in need of dental care by age. Although these observations do not include roentgenographic examination, they are, for all practical purposes, accurate. Twenty-two and six tenths per cent of the two year old children have 4.3 involved deciduous teeth, whereas 83.4 per cent of the six year old children have 6.5 involved deciduous teeth.

Tables 2 and 3 provide information concerning the number of patient visits necessary to complete the required services for the children listed in Table 1. These figures (Tables 2 and 3) represent only those children who came weekly and regularly until all needs were completed. The tables do not relate the story of a second group of children who came repeatedly but whose total needs were not met because of failure to attend the clinic a sufficient number of times for completion.

Proportionately, dental service for more children was completed in the group that needed less attention than in the group that required more attention. This fact tends to distort the average number of visits required to complete the services for each child. In addition, deciduous anterior teeth were not treated in children four years of age or older because of the backlog of patients.

The number of visits needed to complete the required dental service for a child is dependent in part on the cooperation and degree of tolerance of the patient. Three year old children, and those younger, will tolerate treatment for 20 to 30 minutes. Five and six year old children, when properly trained, are more cooperative and will tolerate 30 to 45 minute operative periods.

Table 1 • Def rates and percentage of children with involved deciduous teeth by age—from clinical observations of 2,455 patients treated in 1954

Age	No. of pts. examined	No. of pts. with def teeth	No. of def teeth	Def rate	Children with def teeth %
2	301	67	292	4.3	22.6
3	744	282	1,455	5.2	37.9
4	677	438	2,371	5.4	64.7
5	576	431	2,446	5.7	76.5
6	157	131	849	6.5	83.4

Table 2 • Number of dental visits necessary for completion of accumulated dental needs of preschool age children, by age

Age	No. of pts. whose dental needs were completed	No. of visits for completion	Average no. of visits for completion per child
2	28	61	2.2
3	167	545	3.9
4	229	1,012	4.4
5	151	694	4.6
6	23	144	6.2

Table 3 • Number of dental visits for completion of maintenance dental needs for preschool children, by age

Age	No. of pts. whose dental needs were completed	No. of visits for completion	Average no of visits for completion per child.
3	26	60	2.3
4	118	309	2.6
5	181	504	2.8
6	67	172	2.6

The number of visits required to provide maintenance care is approximately the same regardless of the child's age (Table 3) as more work is done at each visit for the older children (ages 4, 5 and 6) and less for the younger children (ages 3 and 4) resulting in an average of 2.5 visits per child.

The number of extracted second de-

Table 4 • Extracted (or indicated for extraction) second deciduous molars in preschool age children by age from among 2,455 patients treated in 1954

Age	No. of children treated	No. of children with 1 or more second deciduous molars extracted or indicated for extraction	No. of 2nd deciduous molars extracted	Children with 1 or more deciduous molars extracted—%
2	301	0	0	0
3	744	6	15	.8
4	677	38	58	5.6
5	576	85	123	14.9
6	157	58	112	36.9

ciduous molars or those indicated for extraction among the 2,455 preschool children in this study is shown in Table 4.

The number of children in this study with lost second deciduous molars is startling since these youngsters received somewhat regular and periodic dental care and therefore do not represent the great group of dentally neglected preschool children. These observations point up the need for the application of all known caries preventives, the need for beginning dental care when the children are between the ages of two and three and for complete maintenance service thereafter at frequent and regular intervals.

SUMMARY

Caries among preschool children is an enormous public health problem. The solution of this problem lies in caries preventive measures and early treatment, the latter to begin between the ages of two and three, to be followed frequently and periodically thereafter by good care.

Ten per cent of the population of the average community is composed of preschool children. Children in this group must be included in the practice of the general practitioner. Failure to do so contributes considerably to the growing group of dental cripples found in every generation.

The public health and clinical phases of a preschool dental program as presently operated in a community of approximately 185,000 is discussed.

Statistical data with regard to def rates, dental visits necessary for completion of cumulative and maintenance dental needs, as well as data on lost second deciduous molars is presented.

The Aim of Living • Not perfection as a final goal, but the never-ending process of perfecting, maturing, refining, is the aim in living. . . . The bad man is the man who, no matter how good he has been, is beginning to deteriorate, to grow less good. The good man is the man who, no matter how morally unworthy he has been, is moving to become better. Such a conception makes one severe in judging himself and humane in judging others. *John Dewey, Reconstruction in Philosophy.*

Predictability of dental care needs of adults

Walter J. Pelton, D.D.S., M.S.P.H., and*
Elliott H. Pennell,† B.S., Washington, D. C.

Two doubts have been expressed from time to time about the insurability of dental care. The first doubt concerns the saleability of dental health insurance and the second concerns the applicability of insurance principles in the field of dental health.

The rapid development recently of prepaid dental care programs for children on the West Coast goes far to remove doubt that dental health insurance is saleable.[1] With regard to the second doubt, the basic problem in planning a dental health insurance program, for either children or adults, is to arrive at premium rates that cover accrued needs existing at the time a patient enters the program and then finance the subsequent needs which are usually much less than the initial service.

Previous experience with dental care programs indicates that the major rehabilitation problem encountered in children is largely the provision of operative dentistry.[2,3] It has been much more difficult to plan prepaid dental care programs for adults who need a great variety of services other than operative. The care required to meet initial needs may be two, three or four times greater than that required to meet the usual annual maintenance need. In at least one instance,[4] the initial needs of a patient joining a dental insurance scheme are paid for on a fee-per-service basis and only the maintenance needs are met by the insurance premiums.

Assuming that a prepaid dental plan is once started, it is not known whether the problem is simply one of budgeting or whether there is variation of risk between individuals. If a given individual requires a great deal of service on his first recall appointment, it is not known whether he will continue to be a "high loss" patient and vice versa.

This paper is intended to present actuarial data describing dental care maintenance requirements for adults as they evolved from study of a comprehensive dental care program.[5] The program was operated by Group Health Association, Inc., Washington, D. C., and provided continuing dental care for a limited number of persons on a fee-per-service basis and represented an attempt to accumulate actuarial data and administrative ex-

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*Dental director and chief, Division of Dental Resources, U.S. Public Health Service.

†Public health analyst, Division of Dental Resources, U.S. Public Health Service.

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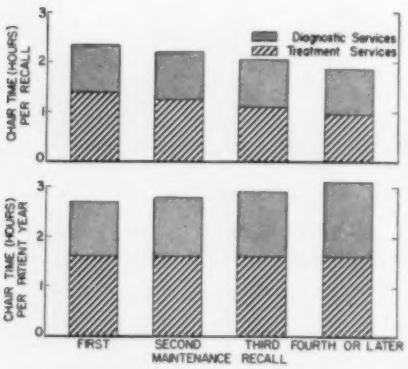

Fig. 1 • Diagnostic and treatment time required for successive recalls

perience to permit ultimate conversion into a prepaid dental service. Fees were based on the cost of rendering the various services to enable the program to become self-supporting. Services for persons participating on a continuing basis were visualized as falling into two phases. The first phase, that of initial care, was concerned with the elimination of accumulated dental needs and the restoration of the mouth to optimal health status. Completion of this work marked the beginning of the second, or maintenance phase.

During the second phase, the patient was recalled at regular intervals for the diagnosis and treatment of all dental conditions accruing since he was last seen at the clinic. As a condition for continued participation, the patient was obliged to accept all treatment indicated by the diagnosis, in accordance with a particular treatment plan. The objective was a high quality dental service in which costs did not influence the selection of procedure or materials.

The previous report,[5] which presented findings for the entire study experience, included data abstracted from the clinical records of 1,925 patients distributed over all age groups. In contrast with the nation as a whole, participants were underrepresented in the age groups 15 to 24 years and 55 years and over and there was a large concentration in the 25 to 54 year age group. Work concerned with caring for initial needs upon entry into the program extended over a period of three months for the average patient. The maintenance experience corresponded to 22 months of continuing care and included more than two recall periods. Chair time initially required to establish optimal dental health for the average patient was 5.2 hours. To maintain this goal, 2.8 hours were needed annually for all services including diagnosis and treatment planning. Time consumed in orthodontic treatment and laboratory services was not included in the study.

The care provided in the average recall series corresponds to correction of needs which accrued over a period of 9.4 months. As a patient's maintenance experience progressed through successive recalls however, there was a gradual decrease in the time-period covered. The average chair time per recall was also less with each succeeding recall (Fig. 1). The change is reflected in a reduction in the time required for operative, prosthetic, surgical and other treatment services, which reduction presumably is associated with the fewer needs that may accrue over shorter periods of time. The average time requirement for diagnostic services, on the other hand, was essentially the same for each recall. This might be anticipated since the same technical steps and essentially the same length of time are involved in the diagnostic steps required for treatment planning, whether the period of accruing needs be long or short.

Translation of time per recall to time per patient-year of care results in estimates of annual treatment needs which are essentially the same from recall to recall. There is some progressive increase in the time per year required for diagnostic services. It thus appears that reducing the interval between recalls increases the frequency with which patients are seen, expands somewhat the time

required for diagnostic services, but does not affect savings in the amount of treatment needed per year in a continuing care program.

The study findings indicate that the clinic time required to meet initial and annual maintenance care needs was relatively low for young children (Fig. 2). As age advanced, clinic time gradually built up and continued at a higher than average level throughout adult life.

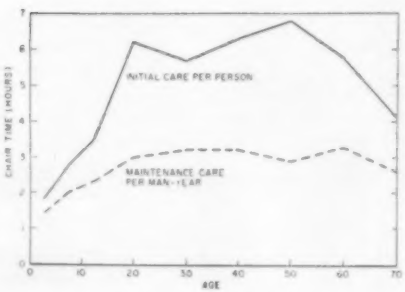

Fig. 2 • Chair time in initial and maintenance care

PRESENTATION OF DATA

This paper deals only with treatment time (excluding examinations, taking of roentgenograms, prophylaxes and laboratory services) used to provide complete maintenance care for the 716 patients between the ages of 25 and 54 years whose maintenance experience included recalls in two or more calendar years. These patients entered the program at different times and had continued through two or more maintenance recalls at the time their records were reviewed. An individual was classified by the calendar year in which he entered the maintenance phase of the program. Treatment time and months of observation were summated, and the average treatment time (minutes) per month of observation was computed for this total period of observation and for each subperiod corresponding to the recall or recalls which started in each calendar year in which he participated in the program. Participation of these 716 individuals averaged 27.3 months, and the maintenance care they received averaged 10.2 minutes of clinic time per month for the 1,954 periods of observation recorded for the group.

The maintenance needs appeared to be modified slightly over successive recall periods (Fig. 3). The average time (minutes per patient per month of observation) declined from 10.8 minutes for recalls starting in the first calendar year in which a patient participated in the maintenance program to 10.5 minutes for recalls starting in the second year, and averaged 9.0 minutes for recalls starting in the third or later years. This moderate decline is reflected in the distribution of patients by time required for needed corrective work in successive years of record. For this comparison all participants have been classified as low-need, intermediate-need and high-need on the basis of the amount of clinic time required per month to complete all dental treatment in a recall year.

The patients classified as low-need either received no treatment at all or the treatment received required less than five minutes of clinic time per month of observation. Treatment received by those in the intermediate-need group represented at least five minutes but less than 15 minutes per month, while the high-need group was characterized by treatment demands requiring 15 minutes or more per month. In the first year, 40 per cent of all patients received less than five minutes of treatment per month; for 37 per cent, the time required varied from 5 to 14 minutes, and for 23 per cent, 15 minutes or more per month was utilized. For both the second and the third or later recall years, however, a somewhat higher percentage were in the low-need category, and there were slight reductions in the proportions classified in the intermediate and high-need groups.

These data suggest that the average

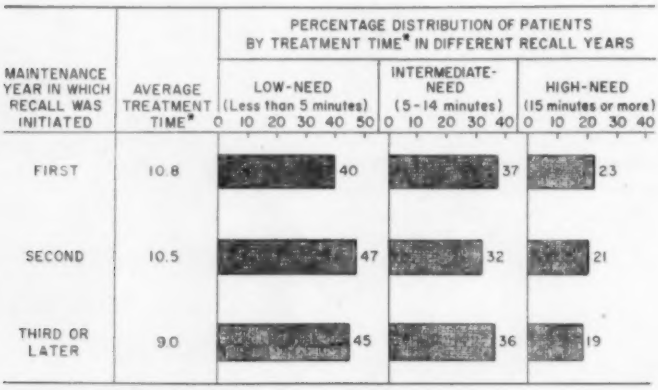

Fig. 3 • Distribution of patients by treatment time needed in successive recall years*

clinic time required for full maintenance care is roughly predictable for a group from one year to another where the program provides periodic and complete correction of dental needs as they accrue. It is also apparent that the amount of clinic time required to meet all treatment needs varies widely from patient to patient in any year even though the proportions in the low, intermediate and high-need groups do not change greatly as the experience progresses over successive maintenance years.

Further analysis of the data indicates that treatment needs of individuals vary widely from one year to the next (Fig. 4).

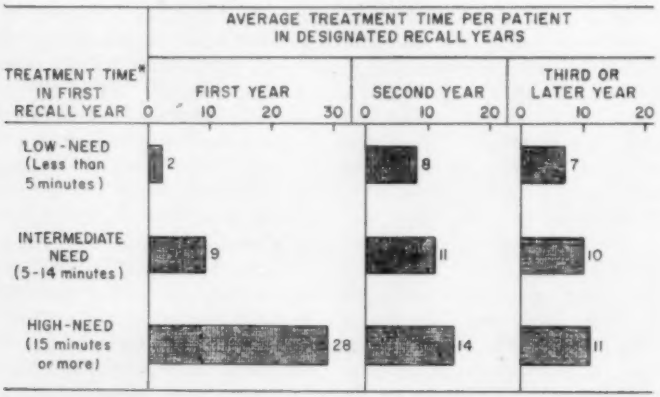

Fig. 4 • Average treatment time required for selected groups of patients in successive recall years*

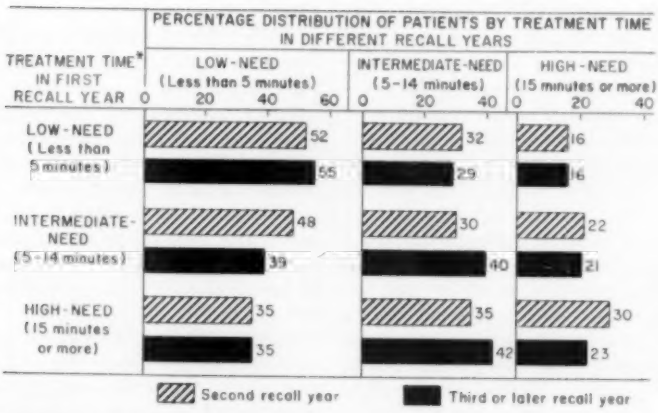

Fig. 5 • Distribution of selected groups of patients by treatment time needed in different recall years*

The group identified as low-need in their first maintenance year averaged only two minutes of care per month in that year. During their second year these same patients received an average of eight minutes of care per month, a value more than four times as great as for the first year, and seven minutes per month during their third and later years of participation. At the other extreme, the high-need group averaged 28 minutes per month for their first recall year, but received only 14 and 11 minutes per month respectively in subsequent recall years. The intermediate-need group continued in subsequent years to require care at average rates which were between those of the high and low-need groups. These data suggest that needs for low, intermediate and high-need groups, as determined from their first year of maintenance, approach average values which more and more closely approximate that for all individuals as their participation extends over succeeding years.

While these averages again indicate that substantial diminution can be predicted in the amount of clinic time required for care of the group initially classified as high-need and an increase in the amount for those initially in the low-need group, the distributions of individuals within each of the groups for subsequent recall years give little indication that future needs for an individual can be predicted with any assurance (Fig. 5). About one half of those patients who were classified as low-need in the first year were also so classified in subsequent years, while 16 per cent, or one in six, were later classified in the high-need group. On the other hand, 35 per cent, or one in three, of those initially classified as high-need were in the low-need category in subsequent years and 30 and 23 per cent respectively were still classified as high-need in their second and third recall years.

SUMMARY

A careful analysis of the chair time required for dental services (exclusive of examinations, prophylaxes, roentgenograms and laboratory services) supplied to 716 adult patients who participated in a maintenance care program for two or

more years indicated a remarkable constancy in the average dental need per patient from one year to another. There were wide variations, however, between the services obtained by different patients at the first recall. In addition, the length of time devoted to treatment of a specific patient at the first recall did not predict the time subsequently needed by him at later recalls. These data suggest that once an individual's initial needs are met, it is not possible to predict his future need for service, yet the total experience for a group of patients falls into a rather predictable pattern and the average recall time remains relatively constant for adult patients.

CONCLUSIONS

It is clear that the variation between chair time to meet the maintenance needs of adults for operative, prosthetic, surgical and other dental services is such that the insurance principle, as it relates to chair time, will apply.

Since time utilized for examination, roentgenographic and prophylaxis services is a rather constant item and will be needed by all patients, diagnostic service would represent a fixed or an uninsurable item. The cost of providing diagnostic services, however, is known and could be included in the premiums for prepaid dental care.

Although this study supplies no information as to the average time or average cost of laboratory services for the construction of prosthetic devices, bridgework or other nonchairside services, it would seem that it would be possible to obtain average figures for such costs and include them in a premium for dental health insurance.

Waiting • Pure waiting is torture; no one could bear to sit seven years, or seven days, or walk up and down and wait, as one can do for perhaps an hour. In the larger and larger time units, that cannot happen, because waiting gets longer and thinner. . . . A half hour of pure and mere waiting is more frightful and more cruel than waiting that can be put into a life of seven years. . . . What we await close at hand affects us, precisely because of its nearness; it transforms our patience into nerve and muscle consuming impatience. . . . Such is the origin of the surprising truth, that no matter with what degree of longing we wait, we do it not with more difficulty, but with more ease, the more distant in time lies the goal of our hopes. *Thomas Mann, Joseph and His Brethren.*

Surgical approach in periodontal treatment

Richard Chace, D.D.S., Orlando, Fla.

The surgical approach to the treatment of the periodontal pocket may be made in a number of ways. The simplest is to treat all periodontal pockets that do not disappear after prophylaxis with a gingival resection. Although this was the procedure followed by many of the developers of the surgical technic, it is becoming less and less favored among dentists who have received their periodontal training in the last few years. The extent that surgery should be employed in periodontal practice is something that each practitioner must decide for himself. The important thing is that the decision of how the individual patient should be treated must be guided by sound biologic principles. This paper will endeavor to present some of the principles that guide the choice of treatment and will try to present a rationale of various surgical technics.

The most important principle that must be kept in mind is that there is an immense variation in individuals and in their response to therapeutic procedure. This variation is to a large extent unpredictable and can be ascertained only by a close observation of the response to treatment. Because periodontitis is a chronic disease instead of an acute disease, definitive treatment of the periodontal pocket does not have to be determined until after preliminary treatment has been completed and the patient's reaction observed. In preliminary treatment the known etiologic factors are removed, and the gingival tissues are gotten into a relatively noninflammatory state. Supragingival calculus is removed, a preliminary curettage of the pocket is performed, the major part of occlusal equilibration is completed and an adequate home care technic is taught the patient. It is well to allow several weeks to pass before the condition is re-evaluated and the definitive treatment of the pockets is decided on. Usually the shallow pockets will be eliminated by this first procedure. A very favorable response might encourage the operator to continue with conservative treatment. Otherwise, some form of surgical intervention should be considered.

The purpose of surgical intervention is to produce atrophy of the soft tissue wall of the pocket and to give proper architecture to the gingivae. If more conservative procedure will accomplish these ends without an unreasonable expenditure of time, it is illogical to resort to surgery. The deeper the pocket, however, the more hypertrophic or fibrous the gingivae, and the greater the amount of degenerating granulomatous tissue in the deeper part of the soft tissue wall, the more surgical intervention is indicated.

There has been a tendency in the literature to report cases that illustrate the use of gingivectomy over the entire mouth. The inference is taken by many dentists that a choice must be made between surgery and some other procedure. Actually, the typical case of periodontal

involvement is more likely to offer opportunity for several kinds of treatment. Only a small percentage of patients have deep pockets all over the mouth. It is rare that even the most ideal patient for subgingival curettage does not have at least a few regions that could not be treated better by surgical removal of the soft tissue.

Although the author has a limited practice and sees the most advanced forms of periodontal disease, only about 15 per cent of his patients are treated by a full mouth resection. About 20 per cent are treated by curettage only. The remaining 65 per cent are treated by a combination of methods.

The simplest use of the gingival resection is in conjunction with curettage. Frequently there will be one or two pockets present in one region that are much deeper than those around the other teeth. A resection can be performed on these pockets at the same sitting as the curettage. Since curettage is often carried out under local anesthesia, little extra time or trouble is involved. It is frequently of advantage to contour some regions of the gingivae by scraping, even when the entire thickness of the soft tissue is not removed. It is, of course, just as important that the root surface of the resected regions be curetted as it is in the curettage regions. An important cause of failure in periodontal surgery is inadequate smoothing of the root surfaces. A gingival resection is curettage of the root plus the removal of the soft tissue wall—not merely the latter.

Conservatism must be a guiding principle in the selection of treatment. Not only does this statement imply that tissue is never excised needlessly, but also that reattachment must be attempted whenever it has a reasonable chance to succeed. Although this article does not deal with practice management, some space must be given to this phase of dentistry in order to show how conservatism may be made practical.

In handling all periodontal cases, the operator must make an arbitrary division of the simple and the complex, or advanced, forms. The treatment of the latter should be extended over a year's time and should be charged for on a fixed fee basis. The major portion of treatment is finished in the first few months, but the patient is seen frequently for checkups for the rest of the year, and any necessary supplementary treatment is done at that time. The advantages of this method are many: it enables the dentist to observe the reactions to preliminary treatment without the pressure of getting through with the treatment, and, after major treatment is completed, it gives the dentist a second look at any region that might need further attention. Frequently, reattachment is only partial, and another small operation is indicated to gain a good result. Occasionally a region will need recontouring. The occlusion sometimes shifts after active treatment. The patient is well prepared for this if he knows his active treatment covers a year's time. Most important of all is the effect on the operator's mind. He will tend to be more conservative if he knows that he does not have to be perfect on his first attempt.

REATTACHMENT

When response to preliminary treatment has been favorable, reattachment should be considered in two kinds of pockets: (1) infrabony pockets and (2) narrow, deep, suprabony pockets.

In both kinds of pockets, reattachment often may be attained by subgingival curettage plus the careful removal of the epithelial attachment and the soft granulation tissue. Success is usually greater if a combination of curettage and tissue removal is used. It must be emphasized, however, that the preliminary treatment of pockets where reattachment is to be attempted must be complete. All causal factors must be removed,

and there must be no inflammation discernible in the soft tissue. The nearer the tissue is to normal histologically, the greater the chance of reattachment. An effective method of achieving this preoperative condition is by packing. A long, flat wisp of cotton is impregnated with a creamy mix of surgical cement and is carried to the bottom of the pocket with a flat plastic instrument. The entire pocket is filled, and the pack is left for two or three days. When the pack is removed, the pocket will be expanded, and the root surface can be carefully curetted. The attempt at closure is made two weeks later.

When infrabony pockets are narrow, that is, when the crest of the bone is not far from the root, subgingival curettage has its greatest chance of success. A broader pocket requires that the soft tissue superior to the bone be excised with a Towner or Sanders scalpel. All the soft tissue between the bone and the root is removed with curets, and the root surface is curetted until it is perfectly smooth. The epithelial attachment is removed with fine curets. The operative site is then isolated, and, while the gap between the root and bone is filling with blood, the margins of the incision are rounded and contoured by being scraped with a sharp Buck scalpel. The pack is not inserted until a firm blood clot is formed between the root and bone. Great care must be taken not to disturb or displace this clot with the pack. It is well to cover the pack with adhesive tin foil for a few days. The pack should not be disturbed for 12 days, and no attempt should be made to probe the operative site for at least three weeks.

Reattachment may be achieved with subgingival curettage of a region or with a regular resection. If reattachment is partial, it is well to wait at least a month or six weeks before reoperating. The second operation is usually more conservative than the first, since the suprabony pocket wall is no longer present, and since the new tissue that has filled the space between the bone and root is of better quality than the degenerating granulation tissue found originally.

When a number of deep infrabony pockets occur in a region or when exostosis is present, a flap operation may be considered. The flap must be planned so that adequate access and visibility can be obtained. The flap enables the operator to smooth jagged edges of bone, remove bone for architectural purposes and smooth the root surfaces adequately. Granulation tissue is removed with curets and small scissors, and the flaps are sutured back into place. It is well to cover the region with tin foil or a pack for a few days. The sutures are removed in four days. It is usually necessary to follow up the operation at a later date with deep curettage and removal of residual pockets, because it is almost impossible to predict where reattachment will occur and how much atrophy of the soft tissue wall will take place.

Narrow, deep, suprabony pockets found on labial and lingual surfaces are best treated by the excising of only 2 or 3 mm. of the gingival margin and then the thorough curettage of the root surface. The inner surface of the soft tissue wall and the epithelial attachment are removed with very sharp curets, and the wall is held firmly against the root with a sterile gauze pad for at least five minutes. A pack is placed, being careful to cover 4 or 5 mm. of the gingiva.

Beube[1] has described an interdental resection for the treatment of deep interproximal pockets that do not extend to the buccal or lingual aspect of the teeth. In this operation a wedge-shaped section of tissue is removed from the papilla, the apex of the wedge being just above the interproximal bone crest. After gran-

1. Beube, F. E. Interdental tissue resection: an experimental study of a surgical technique which aids in repair of the periodontal tissues to their original contour and function. Am. J. Orthodont. & Oral Surg. (Oral Surg. Sect.) 30:497 June 1947.

ulation tissue is removed and the root surfaces are planed, the outer surfaces of the papilla are scraped to insure proper gingival architecture, and a clot is allowed to form in the crater. Great care must be taken so that this clot is not displaced by the pack. The papilla is well formed at a slightly lower level when healing is complete, and connective tissue reattachment in the deeper portions may be expected.

STANDARD RESECTION

The gingival resection is often the method of choice in the elimination of moderate to deep horizontal pockets in periodontitis simplex. There are a number of operations that may be used, and all are effective if proper principles are kept in mind. The gingival wall of the pockets is excised to the attachment, care being taken to bevel the incision as much as possible so that shelf formation is minimized. After the buccal and lingual strips are removed, the region is probed carefully to be sure that no portion of a pocket is left inadvertently. Since pockets often vary considerably in depth, supplementary contouring usually is necessary.

If proper preliminary treatment has been effected, there should be little calculus remaining on the root. Any remaining bits will be removed in the routine planing of the root surfaces. This step is identical to that carried out in subgingival curettage, although larger instruments may be used. The roots must be glassy smooth before this step can be considered complete. The question is often asked why the dentist bothers to work so hard on the root surfaces when they will be above the new gingival surface. There are good reasons for insisting on this curettage. The new epithelial attachment should be on fresh, clean root and not on pus-soaked cementum. Secondly, gingival regeneration is the rule after gingivectomy. The porosity of the root surfaces is often enough of an irritant to encourage inflammation of the new tissue. The author has often been able to rectify a poor surgical result with an adequate root curettage.

Smooth polished roots will make it much easier to keep the operative site clean after healing occurs. Particular attention should be given to the cementoenamel junction, as caries often occurs here. Pointed stones, disks, linen strips and sharp instruments may be used to make this region self-cleansing. This latter step may be done after healing when the mouth is again carefully gone over with instruments to remove any remaining bits of calculus or soft cementum. Although visibility is good when proper suction apparatus is used, the region cannot be completely visualized at the time of the operation, and a follow-up curettage is of utmost importance if the maximum result in treatment is desired.

Bifurcation involvements may be treated successfully by gingival resection if other factors are favorable. If the deeper aspects of the pockets are infrabony, an attempt at reattachment may be made. It is highly recommended that the cementum in the bifurcation be removed by a stone or surgical bur until a hard surface is reached. It is almost impossible to do this with a curet. An area must be left that can be kept clean with a toothpick.

As in all kinds of gingival surgery, no efforts must be spared in the improving of gingival form. The use of scissors and the scraping action of a very sharp scalpel are effective in the production of well-contoured gingival tissue. If a choice has to be made between a shallow sulcus and proper architectural form, the latter should be chosen. A healthy sulcus several millimeters deep can often be seen. A broad gingival shelf almost invariably shows degenerative changes.

It is of advantage to use gingivectomy to eliminate shallow pockets when there is a great deal of poor dental work

present. Overhanging margins and ill-fitting crowns make subgingival curettage almost impossible. Excision of the gingival wall should be done in these instances before the operative work is started.

The gingivectomy is used in instances in which curettage has not been successful. There will be a significant number of moderately deep pockets that refuse to respond even after the most careful instrumentation. When the tissue is excised, cheesy, friable granulation tissue will usually be found in the deeper regions. This degenerating tissue should be completely removed. It will be found that these tissues often heal rather slowly. When soft tissue curettage and the removal of granulation tissue are considered, it must be remembered that this tissue varies in quality. Fibroblasts may dominate the picture, and it would be illogical to remove this tissue that has such a high biologic potential. On the other hand, if pus cells dominate the picture, complete curettage should be carried out, and new granulation tissue will form in the clot.

Interproximal crater formation that follows subacute necrotizing gingivitis should be treated conservatively if possible, but unless regeneration of the papillae takes place promptly, a surgical recontouring must be done. All too often such conditions go on and on until great amounts of interproximal tissue are destroyed.

In very deep pockets the standard gingival resection is of little use because of the impossibility of both preserving proper gingival form and eliminating all the pocket. A modified resection is best employed here, with the soft tissue wall being excised only to the point where proper contour can be maintained. The remaining pocket is curetted very carefully, and the granulation tissue on the inner wall is removed. Although this procedure is far from ideal, it is often better than the extraction of the teeth. All dentists are called on to treat hopeless conditions, and it is amazing how well they sometimes turn out if the foregoing procedure is followed. The patient should be taught to porte-polish such teeth once daily after healing. An improvement in the bone is usually revealed in follow-up roentgenograms, and the sulcus shows no clinical sign of inflammation.

The compromises that must be made in this kind of condition are only exaggerations of compromises that must be made in every instance of periodontal disease. I have never seen a treated periodontal patient whose mouth did not have several regions that were far from perfect. The "zero" sulcus was presented as an ideal, not as a practical end result. Clinical experience shows that deep sulci often continue in an apparently healthy state for years. The recent work of Waerhaug[2] gives some scientific evidence to the old clinical observation that a "healed pocket" may be really healed.

The last principle to remember is that no matter how well pocket elimination is accomplished, expert professional care is a necessity if gingival health is to be maintained. The dentist who dismisses his patient without arranging for regular preventive treatments might as well not have operated in the first place. The definitive treatment eliminates the pockets, but the maintenance phase of treatment saves the teeth.

621 East Colonial Drive

2. Waerhaug, Jens. Gingival pocket. Odont. Tskr. 60:Suppl. 1. Oslo, Norway, Reistad and Sons Boktrikkeri, 1952.

Mat gold foil with a veneer cohesive gold foil surface for Class V restorations

John R. Koser, D.D.S., Los Angeles, and
Rex Ingraham, D.D.S., Hollywood, Calif.

Placement of Class V gold foil restorations in the gingival area should not be considered a specialized procedure today. A knowledge of the requirements of cavity preparation, and the acquisition of skill in the manipulation of gold foil and in the finishing of the restoration enables the dentist to provide his patients with a superior health service.

The diagnosis and treatment of conditions of the dentition should not be determined by the operator's ability or lack of ability to perform a particular operation. The patient's welfare should determine the choice of restorative material and the procedure to be followed in each instance. The restoration of gingival surfaces attacked by dental caries and erosion is a constant problem to every general dental practitioner. The use of amalgam, siliceous cements and the newer plastic materials leaves a great deal to be desired in the treatment of these conditions. The permanency, tissue tolerance, and esthetic results of each of these materials can be challenged.

It is not, however, the purpose of this paper to discuss the advantages of gold foil as a restorative material, but rather to offer a simplified procedure that will overcome the prejudices against its use. The most common objections to the use of gold foil have been the tediousness of gold foil procedures, the discomfort to the patient as well as possible traumatic injury.

Development of the new "mat-cohesive" technic for the placement of Class V gold foil restorations has, to a large extent, eliminated these objectionable factors. Three fourths to four fifths of a Class V prepared cavity can be filled with a core of mat gold foil in a matter of minutes. It is easily swedged into the retentive portions of the cavity with hand pressure. The only mechanical condensation required in this technic is the recondensation of mat foil into the retentive portions of the cavity and the stepping of cohesive foil over the surface of the mat foil. This veneer of cohesive gold provides a protective layer over the mat foil core and seals the surrounding cavosurface margins of the preparation. It is possible to place ideal restorations of much greater size in gingival cavities in less time and with a minimum of trauma when the "mat-cohesive" technic is employed.

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COMPARISON OF PHYSICAL PROPERTIES

Mat gold foil differs from the so-called cohesive type foils. It is a fine, electrolytic, crystalline deposit made adhesive by the nature of its finely divided crystalline structure and by the extremely pure state of the metal itself. Its mechanical strength is the result of a special molding and heat treatment process. This property renders it easier to manipulate. Because mat gold foil is highly adhesive and cohesive, and because it is more readily adaptable than other types of foil, it is ideally suited for building up the internal bulk of Class V, Class I and the occlusal portion of Class II restorations. Hand instruments of proper size and shape should be employed. The best results have been obtained when using hatchet and hoe type parallelogram condensers. The face of these instruments is 1 mm. long and .6 mm. wide and is slightly rounded at the edges to prevent tearing of the foil and to permit the instrument to be used in a rocking motion. A modified Royce type of serration is preferable. A thumb and finger stop on the shank allows maximum finger pressure during condensation (**Fig. 1**).

Mat foil should not be used on the surface of restorations. Its crystalline-like structure apparently does not weld into as homogeneous a mass as cohesive type golds, therefore, there is a greater tendency to surface pitting. This undesirable quality of mat foil is eliminated by surfacing it with a veneer of cohesive gold foil. A cohesive gold foil surface, when properly condensed, will resist pitting and will receive and maintain a high polish ideal for tissue tolerance.

HIGHER FREQUENCY WELDING OF GOLD FOIL

Both laboratory research and clinical investigation have indicated definite advantages to the welding of cohesive type gold foil by means of high frequency vibrations with very low magnitude. All dentists are familiar with the present methods of condensation in which either hand malleting or the low frequency mechanical condenser is employed. The present malleting methods using 360 vibrations per minute or less, require considerable magnitude of the blow for adequate condensation of the foil. Investigations indicate that vibrations of approximately 3,600 cycles per minute with very low magnitude will accomplish the same condensation and weld of gold foil as the present methods without resultant traumatic discomfort to the patient or unfavorable postoperative symptoms.

Knoop values have been determined for specimens of gold foil welded by both methods. Specimens nos. 1, 2 and 3 were condensed with the pneumatic type condenser adjusted to its maximum frequency (360 vibrations per minute) and magnitude of blow (see table). Specimens nos. 4, 5 and 6 were welded at approximately 3,600 vibrations per minute with very low magnitude. By comparison, the average Knoop value of the specimens welded by the new high frequency technic is slightly higher than the average hardness of those condensed at the familiar low frequency. This indicates that the magnitude of the blow bears an inverse relationship to the frequency of the blow.

One of the most apparent advantages of this method of condensation is the highly favorable reaction of the patient during placement of the foil. Elimination of the hand mallet and mechanical condenser alleviates patient discomfort during the operation. Every restoration should be placed with as much care and consideration and safeguarding of vital tissue as is commensurate with practical procedure.

Adaptation and seal of the fragile cavosurface margins of the cavity without damaging enamel or cementum have al-

ways required the utmost skill of the operator. By employing only the lightest touch with the high frequency condenser point, foil can be adapted against surrounding walls without danger of damaging the cavity margins. After sufficiently banking foil against the cavosurface angles of the cavity, more finger pressure may then be exerted to insure adequate density of the foil sealing the margins. Foil also can be laid down on the surface of the restoration with much greater rapidity than with the present methods of condensation.

The initial studies of this technic have been accomplished with experimental apparatus. An electronic unit is under development which has been tested for versatility and dependability. Both frequency and magnitude are manually controlled in this unit by means of variable resistors. Condensation by higher frequency produces principally a surface welding of the foil. For this reason, it has been found necessary to employ a blow of lower frequency with increased magnitude when swedging a bulk of mat foil into the retentive portions of the cavity.

A dry field is essential for the proper placement of gold foil as well as for any other restorative material. With little experience, the practitioner can obtain iso-

Table • Left: Knoop values for specimens 1, 2, 3 condensed with mechanical condenser, 360 vibrations per minute, high magnitude of blow. Right: Knoop values for specimens 4, 5, 6 condensed with high frequency condenser, 3,600 vibrations per minute, very low magnitude of blow

Specimen 1	Specimen 4
100 Gm. Knoop	100 Gm. Knoop
Test A, 319 F.U.	Test A, 314 F.U.
B, 305 F.U.	B, 292 F.U.
C, 311 F.U.	C, 307 F.U.
D, 310 F.U.	D, 343 F.U.
E, 298 F.U.	E, 321 F.U.
Specimen 2	Specimen 5
100 Gm. Knoop	100 Gm. Knoop
Test A, 312 F.U.	Test A, 293 F.U.
B, 301 F.U.	B, 303 F.U.
C, 298 F.U.	C, 319 F.U.
D, 293 F.U.	D, 312 F.U.
E, 311 F.U.	E 309 F.U.
Specimen 3	Specimen 6
100 Gm. Knoop	100 Gm. Knoop
Test A, 310 F.U.	Test A, 293 F.U.
B, 296 F.U.	B, 340 F.U.
C, 299 F.U.	C, 306 F.U.
D, 304 F.U.	D, 312 F.U.
E, 307 F.U.	E, 319 F.U.
304.9 Average for low frequency, high magnitude method	312.2 Average for high frequency, low magnitude method

Note: F.U. refers to "filar units." A 10.25 mm. lens was used in examining each specimen.

lation of the area and a clear field of operation quickly and efficiently through application of the rubber dam. Only lack of experience with rubber dam technic can create an aversion to its use. Any dentist willing to force himself to the initial use of the rubber dam soon will be convinced of its value as a timesaver and as a method by which he can obtain superior results with less effort.

CAVITY DESIGN

Design of the Class V cavity for the reception of gold foil is simple. Proper application of the rubber dam and careful retraction of the gingival tissue by a cervical clamp provide an excellent field of operation with adequate room for placement of the gingival wall under the protection of the free margin of the gingiva (Fig. 2). The position of the retracted septum is an excellent guide for determining the extensions of the mesial and distal walls of the cavity. These walls normally extend to, or lie beyond, the angles of the tooth and are placed under the protection of the free gingival tissue to prevent recurrence of caries at the margins of the cavity. The incisal or occlusal wall is carried to the height of the cervical contour of the crown. The outline form of this wall can be developed to harmonize with tooth form and with the plane of the occlusion remarkably well. The presence of erosion, decalcification or tissue recession influences the extensions of the Class V cavity outline form.

Common variations in outline form are illustrated in Figure 3.[1] A illustrates a straight incisal or occlusal margin which is indicated where there has been considerable destruction of enamel tooth surface in the cervical region. B shows a curved incisal or occlusal margin which produces a more harmonious outline form and allows for greater conservation of labial and buccal tooth surfaces. C indicates that where gingival erosions extend into interproximal embrasures, cavity outline must be extended to include these regions. D shows that where lines of decalcification follow the crest of the gingiva, box forms must be extended in the direction of contact points to include them.

Retention for the foil is obtained by placing a slight undercut just within the dentin of the occlusal and gingival walls (Fig. 4). If the incisal or occlusal wall is undercut too much, the cavosurface angle of the cavity will be weakened. The esthetics of the restoration also will be impaired by a reflection of the underlying gold through the tooth structure above the margin of the filling. The proximal walls diverge slightly from the cavity in such a manner as to maintain maximum strength (Fig. 5). They are not undercut and therefore provide little retention for the foil. A slight cavosurface bevel is placed on the incisal and gingival margins to remove unsupported enamel and to provide greater strength to the cavosurface margins of these walls. There is no need for placement of a cavosurface bevel on the mesioproximal and distoproximal margins of the cavity since the slight flare of these walls provides the cavosurface angle with adequate strength.

PREPARATION

A standardized procedure must be followed in the development of the Class V cavity preparation and the placement of the foil if the restoration is to become economically practical for routine office use. The following points are to be observed in the preparation of the cavity:

1. A thin diamond wheel 5 to 6 mm. in diameter is used to outline the occlusal or incisal wall and to remove the bulk of

1. Ingraham, Rex. Application of sound biomechanical principles in the design of inlay, amalgam and gold foil restorations. J.A.D.A. 40:402 April 1950.

tooth structure in the central portion of the cavity. By extending this cut to the margin of the free gingiva, the height of the gingival crest is indicated on the tooth. This guide is beneficial in making the final adjustment of the cervical clamp (Fig. 6).

2. The rubber dam is prepared by punching holes to include the opposite cuspid and two or three teeth distal to the tooth to receive the restoration. The hole for the tooth to be operated on should be offset labially or buccally (Fig. 7). The rubber dam is placed on the teeth and invaginated around each tooth to prevent the saliva from seeping into the field of operation. A Ferrier 212 cervical clamp is then placed on the tooth to be operated on and the rubber dam and tissue retracted so that the gingival margin of the completed restoration will be located approximately 1 mm. below the free gingiva. The bows of the clamp are secured to the teeth with compound (Fig. 2).

3. The outline of the cavity is completed with a no. 33½ or no. 34 inverted cone bur (Fig. 8).

The first cut establishes the gingival wall 0.5 mm. above the cervical clamp. The bur is introduced in an axial direction using finger rest control to the fullest advantage. This wall must not be carried beyond the width of the arm of the cervical clamp.

The second cut establishes the distal wall by introducing the bur from the mesial direction.

The third cut establishes the mesial wall by introducing the bur from the distal direction. For the greatest speed and efficiency in preparing this cavity, these three walls should be carried to their complete extension with the initial cuts of the bur. This reduces the amount of planing necessary with hand instruments.

The fourth cut with the inverted cone bur is made by introducing the bur at right angles to the long axis of the tooth completing the incisal extension roughly established by the diamond wheel.

4. All four walls are now refined by planing with a monangle hoe. The 10 by 4 by 8 instrument is suitable for this planing action and is used both as a chisel and a hoe (Fig. 9). The pulpal axial floor also may be planed with this instrument.

5. The undercut for retention is placed just within the dentin of the occlusal and gingival walls. This can be done most efficiently by introducing a 6½ by 2½ by 9 monangle hoe at right angles to the long axis of the tooth, then dragging the instrument sideways through these line angles to produce an undercut (Fig. 10).

6. The cavosurface finish is placed on the gingival wall of the cavity with a monangle hoe. A fine sand disk mounted on a mandrel in the contra-angle handpiece may be used to establish the cavosurface finish of the incisal wall (Fig. 11). It is necessary to hold this disk in a fixed buccolingual position to produce a sharp definite cavobevel.

CONDENSATION

1. Mat foil is dispensed in narrow, medium and wide strips. Precaution is taken not to contaminate the foil with moisture, oil or dust. A small pair of surgical scissors is used so as to avoid crushing the mat, and the following pieces are clipped from the dispensed sections and are placed on the electric bulk annealer:

One large cantle to approximate the actual size of the cavity.

Several narrow cantles with length approximating the length of the cavity walls.

A selection of very thin wedges.

One or two large pellets of extra pliable cohesive foil.

These large pellets are placed on the annealer at this time (Fig. 12). Mat foil, unlike cohesive foil pellets, comes from the factory perfectly annealed. Further

heating of the mat foil at this time is an extra precaution against occluded moisture. Cohesive type foil is treated with ammonia gas by the manufacturer to render it noncohesive for storing. The annealing of the cohesive pellet drives this gas from the pellet, removing moisture and other occluded gases, thus restoring its cohesiveness. The electric bulk annealer should maintain a temperature of from 650°F. to 700°F. The mat foil and the cohesive foil are placed on the annealer after it has reached its maximum temperature. The optimum time for annealing before use is from 8 to 10 minutes.

2. When the foil has been annealed, one of the cantles of mat foil, cut to approximately the size of the cavity, is positioned within the cavity preparation (Fig. 13).

3. A pellet of the large extra pliable cohesive foil is then taken from the annealer and placed over the mat foil to act as a matrix (Fig. 13). Without the protection of this matrix of extra pliable cohesive foil, the mat has a tendency to flake and crumble from the cavity during condensation. The initial condensation is now carried out with hand pressure. Hatchet and hoe type parallelogram hand condensers are designed to allow the operator a maximum amount of control and finger pressure. The mat foil is driven into the retentive line and point angles and adapted against the surrounding walls. This first cantle of mat foil is further swedged into retentive line and point angles with a no. 1 condenser point by hand or by mechanical condensation (Fig. 14).

4. The strips cut to the approximate length and width of the cavity walls are now placed in position and swedged against the cavity walls with firm hand pressure (Fig. 15). Complete adaptation is attained by further condensation with a no. 2 point using either hand or mechanical pressure. Additional cantles of mat foil are added in this manner until all surrounding marginal angles of the cavity are banked with gold foil (Fig. 16).

5. The smallest wedge-shaped fractions of annealed mat foil are now used to correct imperfections in the final banking of the cavosurface margins.

Larger cantles of mat foil may then be used to build up the center portion of the cavity until three fourths to four fifths of the cavity is filled (Fig. 17).

Mat foil should never be allowed to extend beyond the margins of the cavity. Although it is intended to bank the surrounding cavosurface margins completely as a protection against injury by a condenser point during the malleting of cohesive pellets, it should never be carried up to the final convexity of the finished surface.

6. The veneer of cohesive gold is now added to the restoration. Each pellet of foil is carefully stepped toward the surrounding cavity walls. The portion adjacent to the walls is built ahead of the center portion. Any excess foil should be removed from the margins as it appears in order to keep the outline of the cavity in view at all times. The gingival portion of the foil must be contoured to re-establish the normal confluence of the tooth surface; thus, injury to the marginal tissue during mastication is prevented. Proper gingival contour stimulates circulation and promotes good tissue tone (Fig. 18).

FINISHING

1. A pull file is ideally suited to remove excess foil and to burnish the margins of the occlusal portion of the restoration. Push files may be used to remove excess from the proximal walls and gingival margin. If the cervical clamp is quite close to the gingival margin of the cavity, the tip of a regular gold knife is used to shave the foil carefully down to the margin.

2. The next phase in refinement is carried out with the Jones Special Gold

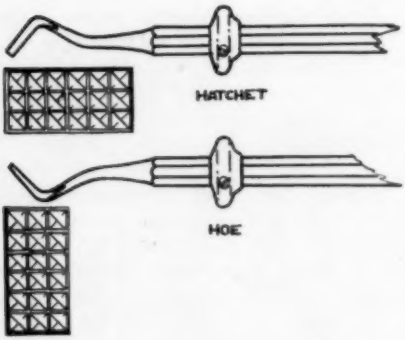

Fig. 1 • Hatchet and hoe type parallelogram condensers are used for hand condensation of mat gold foil

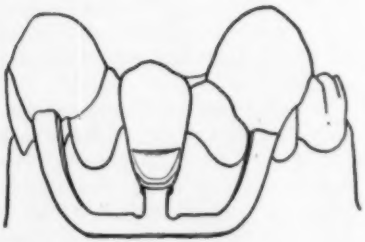

Fig. 2 • Proper application of rubber dam and proper placement of no. 212 cervical clamp (securely blocked with compound) holds gingival tissue in retracted position

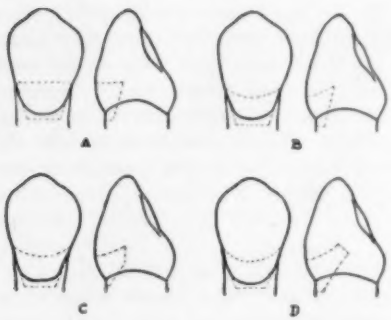

Fig. 3 • Variations in Class V outline form correspond to condition of tooth

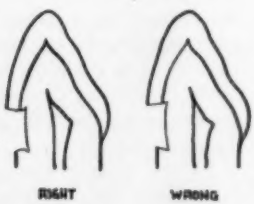

Fig. 4 • Principal retention in a Class V foil preparation is obtained by slightly accentuating gingivoaxial and occlusoaxial line angles placed just within the dentin

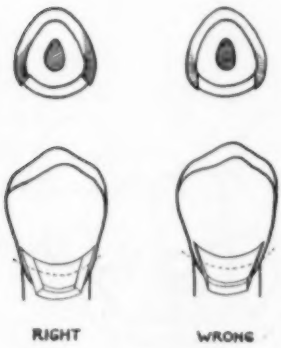

Fig. 5 • Complete undercutting of surrounding walls dangerously weakens enamel and cementum margins

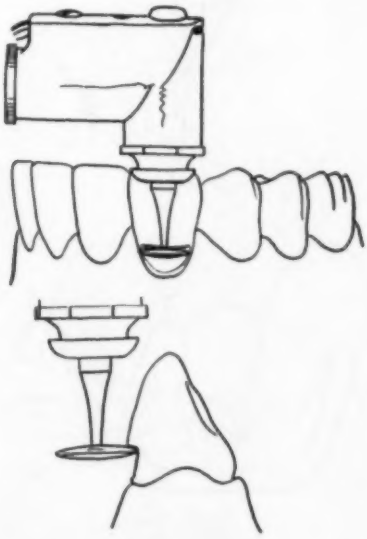

Fig. 6 • A thin diamond wheel is used to establish outline form and to remove bulk of tooth structure in central portion of cavity

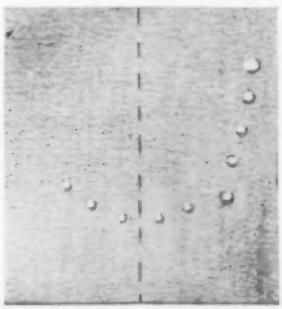

Fig. 7 • Rubber dam should be punched to include opposite cuspid and two or three teeth distal to tooth receiving the restoration to provide adequate access to the immediate field of operation

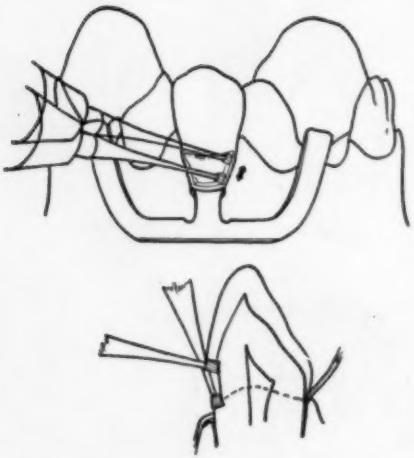

Fig. 8 • The 33½ inverted cone bur establishes final extensions of outline form

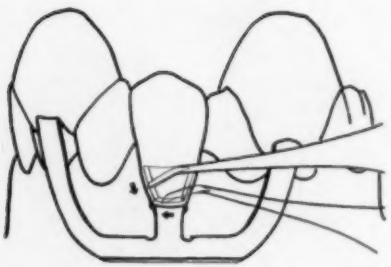

Fig. 9 • A 10-4-8 monangle instrument is used to finish the surrounding walls of the cavity

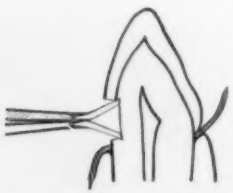

Fig. 10 • A 6½-2½-9 monangle hoe is used to establish the retentive gingivoaxial and occlusoaxial line angles within dentin

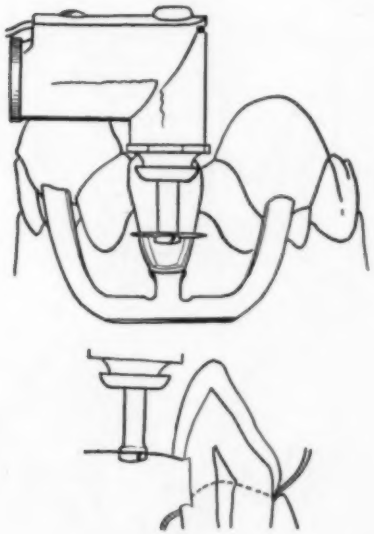

Fig. 11 • A ½ inch fine sandpaper disk is used to define and polish the incisal or occlusal wall of the cavity

Fig. 12 • A number of cantles of assorted sizes are clipped from the ribbon of mat foil and are placed on a bulk annealer which maintains a temperature between 650°F. and 700°F.

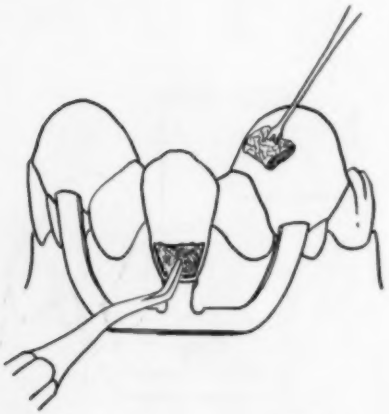

Fig. 13 • A cantle of mat foil approximating the size of the cavity is placed in position. A large pellet of extra pliable cohesive foil is placed over the cantle of mat foil to act as a matrix during condensation

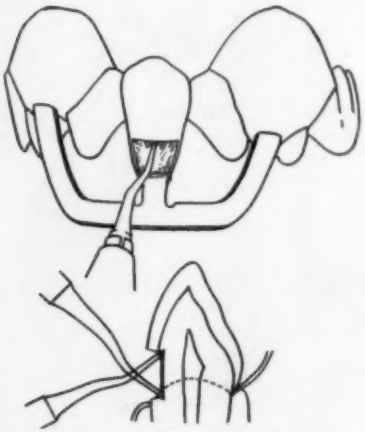

Fig. 14 • This first cantle of mat foil is further swedged into retentive portions of the cavity with a no. 1 condenser point with hand malleting or mechanical condensation

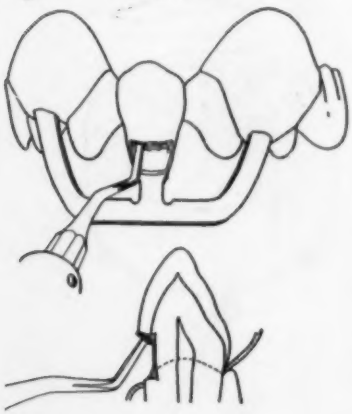

Fig. 15 • All surrounding marginal-cavosurface angles of the cavity are banked with mat foil by condensation with hand parallelogram condensers. These instruments are also used to remove any excess mat foil that may extend beyond the cavomargin of cavity

Fig. 16 • Adaptation of surrounding cavity walls and cavomargins is accomplished with no. 2 point and hand malleting or mechanical condensation

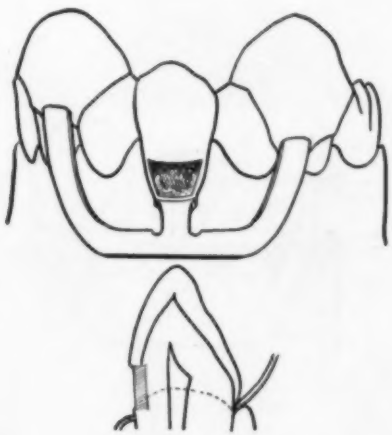

Fig. 17 • All surrounding marginal-cavo-surface angles of the cavity must be banked with mat foil

Fig. 18 • The cohesive veneer is condensed over the mat portion of the restoration and provides the final seal of the margins

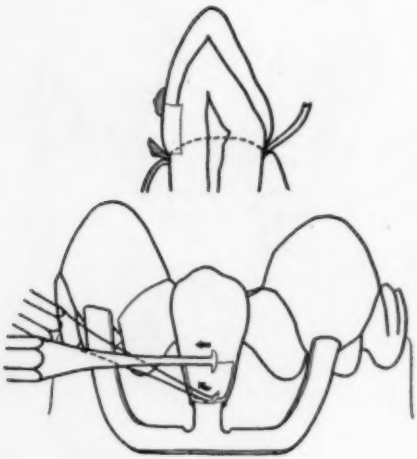

Fig. 19 • Excess foil is removed with the regular gold foil knife. Additional contouring is done with the Jones special gold foil knife

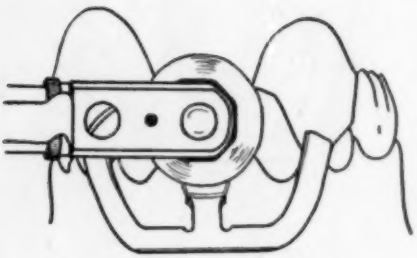

Fig. 20 • The final contour is obtained by the use of X-fine garnet disks and graduated grits of cuttle disks

Foil Knife. Any remaining excess can be removed and excessive contour reduced without damage or removal of tooth structure (Fig. 19).

3. X-fine garnet disks may be used for the final contouring of the restoration. The rubber dam should be lubricated with petroleum jelly in the immediate vicinity of the restoration to prevent the disk from tearing it and damaging the gingival tissue (Fig. 20).

4. Further disking is carried out with graduated grits of cuttle. The cuttle disk will reduce fine line scratches and provide the surface of the restoration with a satin finish (Fig. 20).

5. The final high polish is accomplished by the use of a rubber cup and pumice, followed by one of the luster agents such as chalk or true polish (Fig. 21). The cervical clamp may be raised slightly and readjusted as an extra precaution against the rubber cup touching the cementum surface of the tooth and grooving or ditching the gingival margin. Extreme precaution must be exercised by the operator when using the rubber cup.

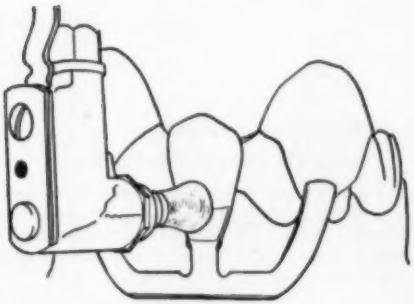

Fig. 21 • The final finish is obtained by the use of rubber cups and fine abrasive

Fig. 22 • A very large Class III-Class V restoration placed by the mat-cohesive technic. (Courtesy, Jones Gold Foil Study Club, U.S.C.)

6. The cervical clamp is removed and the gingival tissue massaged to promote circulation.

An example of a finished restoration placed by the "mat core-cohesive veneer technic" is shown in Figure 22. The veneer cohesive foil surface was condensed at a frequency of 3,600 vibrations per minute with low magnitude of blow. No postoperative symptoms were experienced by the patient after the placement of this extensive restoration.

CONCLUSION

New developments in the manipulation and condensation of gold foil have greatly simplified Class V gold foil procedures. Utilization of a mat gold core with a veneer cohesive gold foil surface removes any necessity for long or tedious operations in the insertion of gingival restorations. Placement of the mat gold core by hand pressure and condensation of the cohesive foil surface with high frequency low magnitude vibration alleviates the objectionable factors of trauma and patient discomfort. With these advancements in technic and manipulative procedures, gold foil is the most economical, the most practical and the most ideal filling material for the restoration of gingival areas.

3731 Stocker Street

The Value of Abstracts • Try to get those journals which carry a selection of abstracts and which, fortunately, are so much in fashion. One of these abstract journals is as valuable as ten other journals read at first-hand. *G. Maranon, Critica de la medicina dogmatica.*

JACKET CROWN TRANSFER

By Jacob B. Shaykin, D.D.S., Chicago.

One of the most difficult problems encountered in the construction of a jacket crown is that of securing perfect relationship with the adjacent and opposing teeth. This problem can be solved by the use of a device called a "transfer." The purpose of a transfer is to make a model so perfect that a jacket crown or any crown made on a die and model will fit as perfectly in the mouth as it does on the model.

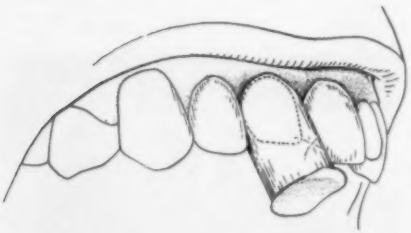

Fig. 1 • After the tooth has been prepared, a tube impression is taken. A temporary crown, constructed of fast setting acrylic resin, is placed on the tooth for esthetic reasons, and the patient dismissed.

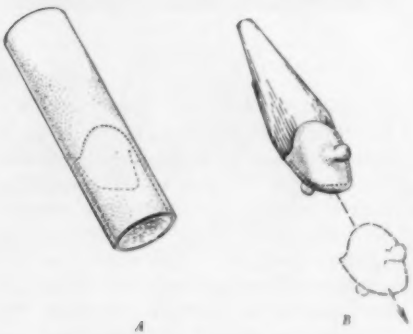

Fig. 2 • An amalgam die is prepared from the tube impression. (A). A platinum matrix is burnished on the die, and porcelain is baked onto the platinum. (B). Note the projections on the labial and lingual surfaces of the porcelain transfer. They are for retention in the plaster impression.

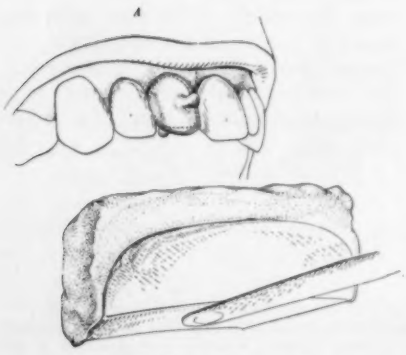

Fig. 3 • The transfer is placed on the tooth (A), and a plaster impression is made for a model (B). The transfer comes off in the plaster and is held in perfect position by the projections. The amalgam die is placed in the transfer, which receives it perfectly allowing for no errors, no distortion.

Fig. 4 • The jacket crown constructed on the model will fit as perfectly on the tooth as it fit on the model.

This method can be used for one crown—for two crowns or for a dozen crowns all made on the same model for the same tooth. Any type of crown constructed on an amalgam die with the aid of a transfer can be made to fit as perfectly as a jacket crown. This method can be used in bridgework and in full mouth rehabilitation. The transfers will bring to the model the exact position of the teeth in the mouth, and the crowns and bridges constructed by this method will fit in the mouth as perfectly as they fit on the model.

25 East Washington Street

Two Contributions of Science • The science teacher should always teach that science has made two fundamental contributions to modern life: it has given man the choice between want and abundance; and it has freed him from irrational fear. Man has not quite conquered fear but through science he has freed himself from the tyranny of ancient superstition and is gradually coming to understand his own inner fears. The scientific conception of the nature of the world and of man can free man's mind just as the scientific control of matter and energy has freed his hands. *Robert J. Havighurst, Sch. Sci. and Math. 44:120, 1944.*

BUREAU OF ECONOMIC RESEARCH AND STATISTICS

Survey of former Armed Forces dental officers

This is the second survey of discharged dental officers. The first survey covered dentists who had been discharged from the Armed Forces between January 1950 and June 1954.[1] The present survey includes dentists who were discharged between July 1954 and August 1955.

These surveys were undertaken primarily to obtain information that would be of help in solving the difficult problem of staffing the Armed Forces dental corps. Although it appears to the Council on Federal Dental Services that the annual number of graduating dentists with military liability is adequate to meet the replacement needs of the Armed Forces, currently dentists with established practices are having to disrupt their practices to serve in the Armed Forces.

Another important purpose of these surveys is to obtain information on the efficiency of the military dental establishments and whether the established ratio of two dentists per thousand servicemen is justified. The Council on Federal Dental Services is charged with evaluating the efficiency of dentistry in the Armed Forces.

Of the 3,004 questionnaires sent out in this survey, 1,569, or 52 per cent, were returned. This is an unusually high return for a mail survey and indicates a strong interest by discharged dental officers in expressing their opinions of Armed Forces dentistry.

Of the 1,569 questionnaires returned, 428 were from Army dentists, 581 from Navy dentists, 465 from Air Force dentists, and 95 from dentists who failed to indicate their branch of service.

There was a large difference in the age distribution of respondents according to branch of service (Table 1). Among dentists who had served in the Army, only 15.9 per cent were under 30 years of age, compared to 30.5 per cent of Navy dentists and 41.5 per cent of Air Force dentists. Mean ages were 35.5 for Army

1. American Dental Association, Bureau of Economic Research and Statistics. Survey of former Armed Forces dental officers. J.A.D.A. 49:571 Nov. 1954.

Table 1 • Percentage distribution of respondents by age

Age	Army	Navy	Air Force
25-29	15.9	30.5	41.5
30-34	34.6	39.8	34.8
35-39	21.0	22.7	13.1
40-44	23.1	5.9	8.6
45-49	3.5	1.0	1.3
50-54	.9	.0	.2
55-	.9	.2	.4
Total	100.0	100.0	100.0

Table 2 • Percentage distribution of dental officers by rank at time of entry into military service

Rank		Army	Navy	Air Force
0-1	2nd Lt., Ensign	.7	2.1	.9
0-2	1st Lt., Lt. (j.g.)	47.4	71.6	72.8
0-3	Capt., Lt.	27.0	24.3	19.8
0-4	Maj., Lt. Comdr.	21.1	1.7	6.5
0-5	Lt. Col., Comdr.	3.8	.3	.0
Total		100.0	100.0	100.0

Table 3 • Percentage of dental officers promoted to specified rank, for dentists who entered in grades 0-2 and 0-3

Rank at time of entry		Rank at time of release	Army	Navy	Air Force
0-2	1st Lt., Lt. (j.g.)	1st Lt., Lt. (j.g.)	54.0	42.9	1.5
		Capt., Lt.	44.5	52.4	95.8
		Maj., Lt. Comdr.	1.5	2.7	2.7
		Lt. Col., Comdr.	.0	2.0	.0
		Total	100.0	100.0	100.0
0-3	Capt., Lt.	Capt., Lt.	87.7	82.7	90.1
		Maj., Lt. Comdr.	10.5	16.6	9.9
		Lt. Col., Comdr.	.9	.0	.0
		Col., Capt.	.9	.7	.0
		Total	100.0	100.0	100.0

dentists, 32.4 for Navy dentists and 31.7 for Air Force dentists.

Of dentists who had served in the Navy, only 37.8 per cent said they were registered under Public Law 779 (physicians' and dentists' draft act) when they entered service, compared to 75.2 per cent of Air Force dentists and 78.2 per cent of Army dentists. The percentage of respondents who had entered as regular officers was 8.4 per cent in the Army, 4.2 per cent in the Navy and 6.5 per cent in the Air Force.

The percentage of respondents holding dental reserve commissions at the time of the survey was 29.1 per cent of Army dentists, 66.3 per cent of Navy dentists and 47.8 per cent of Air Force dentists.

As shown in Table 2, a larger proportion of Army dentists entered at higher ranks than of Navy and Air Force dentists. The percentage of dentists entering in grades 0-4 and 0-5 (major or lieutenant commander and lieutenant colonel or commander) was 24.8 per cent in the Army, compared to 6.5 per cent in the Air Force and only 2.0 per cent in the Navy. These figures are consistent with the differences in age distribution shown in Table 1.

Almost all dentists who entered the Air Force as first lieutenants were promoted (Table 3). In contrast, only three out of five (57.1 per cent) of dentists entering the Navy, and less than half (46.0 per cent) of dentists entering the Army in this grade were promoted. Among dentists entering in grade 0-3 (captain or lieutenant), the Navy promoted a larger proportion than did the Army and Air Force.

To the question, "Were you ever

Table 4 • Percentage distribution of respondents by number of weeks of basic training received

No. of weeks	Army	Navy	Air Force
0	28.8	48.2	14.1
1-2	1.4	32.5	.0
3-4	30.3	5.8	14.3
5-6	6.2	3.9	69.9
7-	33.3	9.6	1.7
Total	100.0	100.0	100.0

Table 5 • Mean number of months of service as a dental officer, in the continental United States and overseas

Location	Army	Navy	Air Force
In the United States	16.1	19.2	17.7
Outside the United States	9.2	6.5	8.5
Total	25.3	25.7	26.2

Table 6 • Percentage of dentists commenting as indicated in connection with the question: "If you were performing general dentistry, were you given the opportunity to practice in the full scope of general dentistry?"

Comment	Army	Navy	Air Force
Fillings only—"amalgam line"—operative dentistry only	18.9	19.6	17.8
No (or too little) prosthetic work	10.0	19.4	5.4
No (or too little) crown and bridgework	2.3	5.0	3.7
No (or too little) surgery	1.9	2.4	1.5

Table 7 • Percentage distribution of replies to the question: "In your opinion, how does the productivity (amount of work done per day) of the average dentist in military service compare with that of the average civilian dentist?"

Reply	Army	Navy	Air Force
Lower (in military service)	25.5	30.1	28.8
Slightly lower	1.5	4.2	5.1
Much lower	22.7	23.0	22.1
25% to 50% lower	13.9	16.1	13.1
Respondent speaking for self—did less in service	1.0	.9	.7
Total, lower in service	64.6	74.3	69.8
About the same	14.7	11.7	15.0
About the same per hour	1.0	1.2	.7
Respondent speaking for self—did as much in service	1.3	1.0	1.2
Total, same in service	17.0	13.9	16.9
Higher in service	7.3	3.3	6.2
Much higher in service	1.0	.4	.0
Respondent speaking for self—did more in service	1.8	.6	1.8
Total, higher in service	10.1	4.3	8.0
Varied with individual or with post or with station or depended on commanding officer	8.3	7.5	5.3
Total	100.0	100.0	100.0

Table 8 • Percentage distribution of replies to the question: "In general what is your opinion regarding the number of dentists assigned to the units in which you served?"

Reply	Army	Navy	Air Force
Understaffed	27.4	27.4	39.8
Overstaffed	22.3	16.9	14.8
Neither understaffed nor overstaffed	39.1	48.0	35.2
Varied from post to post	11.2	7.7	10.2
Total	100.0	100.0	100.0

Table 9 • Percentage distribution of respondents according to percentage of duty time devoted to treatment of military personnel

Per cent of time	Army		Navy		Air Force	
	Overseas	Domestic	Overseas	Domestic	Overseas	Domestic
100	10.9	8.2	11.2	23.8	5.2	4.5
95-99	8.3	14.1	15.7	24.9	13.7	18.9
90-94	8.8	13.2	20.2	15.4	17.5	18.1
80-89	18.6	16.7	17.2	13.0	25.9	23.3
70-79	18.7	8.8	13.5	7.5	17.4	12.9
60-69	8.8	6.5	8.6	4.8	9.0	7.9
50-59	11.4	7.3	5.6	1.1	5.7	3.0
25-49	7.8	6.5	3.8	1.3	3.3	2.5
1-24	2.6	3.2	.4	1.1	.9	1.5
0	4.1	15.5	3.8	7.1	1.4	7.4
Total	100.0	100.0	100.0	100.0	100.0	100.0

eligible for a promotion which was delayed but never given?" "yes" was answered by 21.6 per cent of the Army dentists, 30.8 per cent of the Navy dentists and 15.6 per cent of the Air Force dentists.

There were large differences in the amounts of basic training received by dentists in the three branches of service (Table 4). Less basic training was reported by Navy dentists than by Air Force and Army dentists, with nearly half (48.2 per cent) of the Navy dentists reporting no basic training. In the 1954 survey, only 18.2 per cent of Air Force dentists reported having received basic

Table 10 • Percentage distribution of respondents according to replies to the question: "If you provided dental service to dependents of military personnel, please indicate approximate relative frequency with which you provided service in the following categories."

Branch and frequency	Type of service provided to dependents					
	Amalgam and silicate fillings	Inlays, crowns and bridges	Dentures	Oral surgery	Periodontal treatment	Orthodontic treatment
Army						
Frequently	58.0	4.5	12.2	38.8	8.7	2.4
Occasionally	15.3	30.0	25.7	29.7	31.6	3.6
Never	2.1	32.8	32.0	7.3	26.4	58.7
No answer	24.6	32.7	30.1	24.2	33.3	35.3
Total	100.0	100.0	100.0	100.0	100.0	100.0
Navy						
Frequently	12.4	.5	1.9	12.6	4.2	.7
Occasionally	18.8	9.1	6.3	29.1	15.0	1.5
Never	8.6	25.2	26.5	2.4	16.7	31.9
No answer	60.2	65.2	65.3	55.9	64.1	65.9
Total	100.0	100.0	100.0	100.0	100.0	100.0
Air Force						
Frequently	53.6	2.6	6.0	60.1	13.9	3.4
Occasionally	30.3	31.1	38.8	30.9	45.5	7.3
Never	5.6	51.9	42.7	1.3	26.0	73.8
No answer	10.5	14.4	12.5	7.7	14.6	15.5
Total	100.0	100.0	100.0	100.0	100.0	100.0

Table 11 • Percentage of respondents commenting as indicated on "system of dental record-keeping"

Comment	Army	Navy	Air Force
Excellent	4.4	10.8	14.6
Good	36.2	43.5	49.7
Fair	5.6	4.8	4.1
Poor	8.9	2.9	3.0
Too complicated or too much paper work	11.0	13.3	12.3
A permanent dental treatment record should be part of the service record and accompany each serviceman	10.5	1.9	1.3
There should be a uniform system of records for all services	4.7	1.5	1.9

Table 12 • Percentage of respondents commenting as indicated on the "adequacy of supplies and equipment"

Comment	Army	Navy	Air Force
Excellent	6.5	13.9	8.2
Good	34.8	38.7	29.2
Fair	5.1	5.7	10.1
Poor	4.4	6.7	21.1
Varied from post to post	3.0	1.2	4.3
Supplies and equipment obsolete or of poor quality	12.1	7.9	11.2
Too much "red tape" in getting supplies	8.2	4.8	15.9
There was under-supply or occasional shortage	4.2	2.1	5.8
There was over-supply and waste	2.1	4.0	1.5
Adequate in U. S. but not overseas	2.8	1.2	5.2

Table 13 • Percentage of respondents commenting as indicated on the "arrangement of facilities"

Comment	Army	Navy	Air Force
Excellent	4.4	10.7	10.3
Good	48.8	51.6	46.9
Fair	7.7	5.7	8.0
Poor	5.4	2.8	6.2
Varied from post to post	1.6	1.0	1.3
Arrangement was poor overseas	1.9	.7	3.7
Private office should be provided for each dentist	2.6	.5	3.4

Table 14 • Percentage of respondents commenting as indicated on the "availability, utilization and training of auxiliary personnel"

Comment	Army	Navy	Air Force
Excellent	.9	10.3	3.9
Good	19.6	36.0	21.9
Fair	6.3	5.9	9.7
Poor	25.7	5.3	19.6
Varied from post to post	2.6	1.9	3.2
Shortage of auxiliary personnel—shortage of well-trained personnel	13.1	10.2	17.4
Auxiliary personnel poorly trained, lazy or inefficient	12.2	4.8	12.0
Too many auxiliary personnel were assigned nondental duties	4.4	3.4	4.9
Too many transfers of auxiliary personnel	2.8	1.4	2.8

training, compared to 85.9 per cent in the present survey.

The majority of respondents had served the two years required under provision of Public Law 779. Therefore, the average number of months served was slightly over 24 for all three branches (Table 5). Navy dentists averaged only 6.5 months overseas compared to 8.5 months for the Air Force and 9.2 months for the Army dentists.

Between 80 and 90 per cent of the dentists from each branch of service answered "yes" to the question, "Were your assignments generally in line with your dental training and experience?" About three fourths of the dentists from each branch of service indicated they were "satisfied" with their assignments.

The respondents were asked, "If you were performing general dentistry, were you given the opportunity to practice in the full scope of general dentistry?" "Yes" was the reply of 45.2 per cent of the Army dentists, 38.8 per cent of the Navy dentists and 65.6 per cent of the Air Force dentists. The comments in connection with this question are shown in

Table 15 • Percentage of respondents commenting as indicated on the "efficiency of the dental laboratory set-up"

Comment	Army	Navy	Air Force
Excellent	6.1	11.4	8.4
Good	31.1	31.5	34.2
Fair	10.0	6.4	10.8
Poor	10.7	7.4	19.4
Varied from post to post	5.6	1.7	2.4
Higher caliber or better trained men needed	8.2	3.8	13.1
More and better dental laboratories needed	2.8	2.8	3.2
Statement favorable toward central dental laboratories	3.5	.9	3.4
Statement critical of central dental laboratories	2.8	.2	3.7

Table 16 • Percentage of respondents commenting as indicated on the "quality of dental services provided"

Comment	Army	Navy	Air Force
Excellent	16.1	20.8	22.4
Good	32.0	33.4	38.5
Fair	9.3	7.4	6.0
Poor	5.1	2.2	2.2
Varied from post to post	6.3	2.8	3.2
Varied with individual dentist	14.0	9.5	10.3
Better quality than civilian dentistry	1.4	4.0	3.7
Operative dentistry good, prosthetics and/or surgery poor	1.2	2.1	2.4

Table 17 • Percentage of respondents commenting as indicated on "competence of dental administrators"

Comment	Army	Navy	Air Force
Excellent	7.7	9.6	11.6
Good	16.6	23.2	22.2
Fair	10.5	10.5	12.3
Poor	24.8	14.8	19.1
Varied from post to post	14.5	10.3	12.7
Regular Army, Navy or Air Force officers (or higher ranking officers) were not competent administrators	8.2	4.0	5.8
Stressed military aspects of service too much, professional aspects too little	6.1	5.5	5.4
Too concerned with quotas, monthly reports, work sheets	7.0	2.2	5.4
Too many administrators —too many high ranking officers	1.2	1.7	.9

Table 18 • Average ratings* on seven aspects of dentistry in the Armed Forces

Aspect of military dentistry	Army	Navy	Air Force
System of dental record-keeping	2.7	3.0	3.1
Adequacy of supplies and equipment	2.9	2.9	2.4
Arrangement of facilities	2.8	3.0	2.9
Availability, utilization and training of auxiliary personnel	1.9	2.9	2.2
Efficiency of dental laboratory set-up	2.6	2.8	2.4
Quality of dental services provided	2.9	3.1	3.2
Competence of dental administrators	2.1	2.5	2.4

*Averages were obtained by applying the following scale to data in Tables 11-17: Excellent = 4, good = 3, fair = 2, and poor = 1.

Table 6. The main complaints were that the dentist was "on the amalgam line" and that there was little opportunity to perform prosthetic work.

To the question, "In your opinion, how does the productivity (amount of work done per day) of the average dentist in military service compare with that of the average civilian dentist?" more than two thirds of the respondents replied that productivity was lower in the Armed Forces (Table 7). The variation according to branch of service was not great, but the proportion of dentists reporting lower military productivity was highest in the Navy (74.3 per cent) and the proportion reporting more work done in service was highest in the Army (10.1 per cent).

In reply to the question, "In general, what is your opinion regarding the number of dentists assigned to the units in which you served?" a plurality of Army and Navy dentists checked "neither understaffed nor overstaffed" and a plurality of Air Force dentists checked "understaffed" (Table 8). In all three

branches more respondents checked "understaffed" than "overstaffed" but the difference was small in the Army and relatively large in the Air Force.

Respondents were asked whether they were ever assigned daily or weekly quotas of production. Approximately one sixth of the dentists from each branch answered affirmatively. An additional 10 per cent from the Army and Air Force and 5 per cent from the Navy said that they were expected to meet quotas although such quotas had never been expressly assigned.

Table 9 shows the percentage of duty time devoted to treatment of military personnel. Dental officer activities other than treatment of military personnel include treatment of dependents of military personnel, dental and military administrative duties and idle time.

As shown in Table 10, treatment of dependents of military personnel was much more common in the Army and Air Force than in the Navy. The service reported most frequently was "amalgam and silicate fillings" followed by "oral surgery."

Respondents were asked, "If you pro-

Table 19 • Percentage of respondents replying as indicated to the question: "Please indicate ways in which you believe military service can be made more attractive to dental officers. What inequities, if any, did you observe?"

Reply	Army	Navy	Air Force
Provide higher pay for dental officers	22.9	24.1	37.6
Allow dentist to do all types of dental work—eliminate amalgam line	15.9	23.7	19.6
Have better housing and assignments for married personnel—allow dentist to choose location—station dentist close to home	12.1	10.8	21.1
Eliminate excessive moving around—have fewer transfers	5.8	11.3	12.7
There is a need for more competent, higher caliber, regular dental officers, administrators or base dental officers	12.6	7.9	7.7
Separate dental department from medical department—provide autonomy for the dental corps	6.5	8.1	7.1
Service dentists should be sent to conventions—short courses should be provided	8.4	4.3	13.3
Allow individual dentist more freedom in treatment planning—dentist should be given feeling of independence and responsibility	10.3	5.9	9.2
Provide higher rank for dental officer—provide more rapid advancement	7.7	7.2	7.3
Require higher ranking officers (administrative officers, or regular officers) to do more clinical work	7.7	7.2	7.3
Eliminate discrimination against reserve officer	9.1	6.2	4.9
Promotions should be based on ability (rather than on age or length of service)	6.1	6.9	4.9
More respect should be shown for the dental profession	8.4	3.4	5.8
Less emphasis should be placed on military aspects of service, more on professional	6.3	4.8	3.9
Eliminate (or de-emphasize) rank among dentists and physicians—eliminate insignia of rank	6.1	2.1	6.9
Make more efficient use of the dental officer	3.0	3.4	4.5
There should be more or better trained auxiliary personnel	4.2	1.7	4.1
Eliminate the uncertainties of military life	1.6	4.5	2.6
There should be better quality or more modern equipment and/or supplies	3.0	1.7	4.5
Promotions should be based on experience, age or length of service—promotions should be automatic	2.3	4.0	2.2
An incentive pay plan should be used to encourage productivity	1.4	3.1	3.2
There should be more "fringe" benefits (post exchange, commissary, etc.)	1.6	2.8	2.4
Emphasize quality more, quantity less	4.0	1.0	2.2
Eliminate dental care for dependents of servicemen	2.1	1.4	3.4
Statement of approval of Armed Forces as they are	2.3	1.9	2.2

Table 20 • Percentage of respondents replying as indicated to the question: "Do you have any suggestions as to how the American Dental Association and its constituent and component societies can render better service to its members who are serving in the Armed Forces?"

Reply	Army	Navy	Air Force
The Association or constituent or component societies should investigate bases at which dentists complain of inequities—there should be a grievance committee to which the military dentist can complain	10.0	6.0	12.5
The Association should correspond with and provide information and materials to servicemen—keep closer contact	9.6	5.0	11.2
A committee of the Association should pass on policies or programs proposed by the Armed Forces—the Association should serve in an advisory capacity	7.7	7.4	9.5
Take action to secure more and better supplies and facilities	9.8	4.0	11.8
Statement that respondent had no suggestions to offer	6.3	6.9	5.8
Make sure that anyone physically able to practice dentistry as a civilian is liable for military service—induct men who have never served—require older men to serve (rather than having younger men serve twice)	5.1	10.2	1.7
Take action to secure higher pay for dental officers	3.3	4.6	9.0
The Association should make regular inspection of military dental clinics	6.1	2.9	8.0
Local dental societies should invite dental officers to their meetings— show more interest in the dental officer	4.4	2.6	8.6
See that the dental officer is allowed to do all types of dental work	3.5	5.2	3.9
Commendatory remark about the Association	2.8	5.5	3.7
Take action to reduce the number of dentists in service—obtain better utilization or distribution of dentists in service	5.1	3.6	3.4

vided dental care to dependents of military personnel, in your opinion were there civilian dentists available who could have provided this care?" About three out of five dentists answered "yes," and this proportion varied little with branch of service.

As in the first survey, about two thirds of the respondents from each branch of service answered "yes" to the question, "Was it your experience that military personnel *in the period of basic training* were not given sufficient time for the required number of dental appointments." Suggested solutions for this problem were about the same as in the earlier survey.

The former dental officers were asked to comment on seven aspects of dentistry in the Armed Forces. Results are shown in Tables 11 through 17. Most comments consisted of a single adjective, such as "good" or "poor."

A quantitative summary of these "ratings" is presented in Table 18, which allows comparisons between branches and between the various aspects of military dentistry. Comparisons between the findings in the two surveys are also possible, but allowance should be made for some subjectivity in the coding of replies.

Respondents were asked to indicate ways in which military dentistry could be made more attractive to dentists and to record any inequities observed in the branch of service in which they served. The 25 most common replies are shown in Table 19.

The most frequent reply to this question was "provide higher pay for dental officers" followed by "allow the dentist to do all types of dental work—eliminate the amalgam line." These two suggestions were also at the top of the list in the first survey, but in the opposite order.

Many more dentists suggested "eliminate excessive moving around—have fewer transfers" in the present than in the earlier survey; this suggestion changed in rank from twenty-fourth to fourth.

Table 20 shows the 12 most frequent replies to the question on how the American Dental Association and its affiliates could render better service to members serving in the Armed Forces. Compared with the earlier survey, more dentists suggested that the Association keep a close surveillance over policies and practices of the Armed Forces dental establishments. A comparison of replies to this question in the two surveys appears to indicate that discharged dental officers are attaching increasing importance to the relationship between organized dentistry and the Armed Forces dental corps.

B. Duane Moen, director

COUNCIL ON DENTAL THERAPEUTICS

Council classifies Thermodent Tooth Paste in Group D

Thermodent Tooth Paste is being actively promoted to the dental profession as an agent for use by "patients with chronic sensitive teeth." According to the distributor, advertising is directed only to dentists. This report is issued by the Council because of the many inquiries that have been received.

The label and literature received in the Council office indicate that the product is essentially a calcium carbonate and magnesium carbonate-type dentifrice to which have been added sodium and potassium salts, and "1.4 per cent formalin." Preliminary examination in the Association's chemical laboratory indicates the presence of 0.5 to 0.6 per cent formaldehyde, which corresponds to the Formalin concentration shown on the label. The pH of a 1:3 aqueous slurry of the product was about 8.3.

The firm states that the product is distributed by them under license from a Swiss firm that has marketed the formula in Europe for the past ten years.

Thermodent is claimed to be "a new efficient remedy for teeth sensitive to *heat* and *cold*." The advertising has suggested that remineralization of tooth substance might account in part for the claimed desensitizing action of the product. In one leaflet it is claimed that (1) by coagulating the tubule surface and (2) by remineralizing the dentin Thermodent "acts" against exposure of "unprotected dentinal tubules" to the oral fluids and "protects the underlying pulp from irritation." Brushing with Thermodent twice daily is said to result in a noticeable reduction of sensitivity in a few days. It is suggested that the product may then be used "intermittently or continuously over an extended period of time without toxic or irritating effects."

The Council has recognized the very limited usefulness of formaldehyde solution (about 37 per cent formaldehyde) in the treatment of hypersensitive dentin (see *Accepted Dental Remedies*, 1956, p. 172), but has warned that the use of such solutions in proximity to the pulp may be hazardous and may produce reddening, inflammation and necrosis of the oral soft tissues unless they are protected from contact with the solution.

The Council has not recognized the

usefulness of formaldehyde in a toothpaste or in a solution so dilute as 0.6 per cent. Statements from *Accepted Dental Remedies*, ed. 18, 1953, to which the firm alludes in the leaflet, therefore have no bearing on Thermodent Tooth Paste. Other published studies[1-4] which are cited to provide a theoretical basis for the treatment of hypersensitive dentin appear to have little, if any, relationship to the commercial product. This conclusion is supported by correspondence furnished to the Council office by two of the investigators whose reports are noted in promotional material for the dentifrice.

Dentifrices for which remineralizing claims are made have been classified in Group D by the Council on Dental Therapeutics. A number of reports in this connection have appeared in THE JOURNAL OF THE AMERICAN DENTAL ASSOCIATION.[5-8]

No controlled clinical study of the effectiveness of Thermodent has been reported to the profession. Correspondence from the firm's representative characterizes such studies as "impractical for lack of valid criteria." It is the apparent intent of the firm to rely on clinical impressions gained by dentists from patients' estimates of the effectiveness of the dentifrice. In the opinion of the Council, it is not possible to obtain an objective assessment of the merit of a pain-relieving agent by a procedure which makes no provision for the elimination of the effect of suggestion or bias.

It is essential that the profession be informed accurately concerning the clinical evidence to support therapeutic claims. Because of the lack of objective evidence to support the therapeutic claims for the product, the Council has classified Thermodent Tooth Paste in Group D (see page 742). In keeping with Council policy, the classification of the product may be reconsidered at any time when there is a substantial amount of new evidence or change in the status of the product.

1. Grossman, L. I. The treatment of hypersensitive dentin. J.A.D.A. 21:2050 Nov. 1934.

2. Sognnaes, R. F. Microstructure and histochemical characteristics of the mineralized tissues. Ann. New York Acad. Sc. 60:545 April 27, 1955.

3. Stack, M. V. The chemical nature of the organic matrix of bone, dentin and enamel. Ann. New York Acad. Sc. 60:585 April 27, 1955.

4. Armstrong, W. D. Radiotracer studies of hard tissues. Ann. New York Acad. Sc. 60:670 April 27, 1955.

5. American Dental Association, Council on Dental Therapeutics. Eff-Remin dentifrice—not acceptable for A.D.R. J.A.D.A. 26:1887 Nov. 1939.

6. American Dental Association, Council on Dental Therapeutics. Notice of judgment under the Federal Food, Drug and Cosmetic Act. Misbranding of Eff-Remin dentifrice. J.A.D.A. 31:116 Jan. 1944.

7. American Dental Association, Council on Dental Therapeutics. "Remineralizing" dentifrices. J.A.D.A. 32:750 June 1945.

8. American Dental Association, Council on Dental Therapeutics. Preliminary comments: Mandresen. J.A.D.A. 38:264 Feb. 1949.

Council reports on penicillin V (phenoxymethyl penicillin)

The Council on Dental Therapeutics has classified several dosage forms of penicillin V (phenoxymethyl penicillin) in Group B (see page 742).

Orally administered penicillin is recognized as an effective therapeutic adjunct, provided the causative agents of the disease are penicillin sensitive and proper precautions are observed to ensure adequate absorption of the antibiotic. As regards sensitivity, an initial administration by the oral route may offer less hazard than an injection. Patients who are sensitive to the antibiotic may react to oral or parenteral penicillin in the same manner, but the reaction after an oral dose may be slower in onset and less severe.

One serious disadvantage of orally ad-

ministered penicillin has been the destructive effect exerted on soluble penicillin G preparations by acids in the stomach. It has been estimated that only 5 to 30 per cent (average 10 to 15 per cent) of orally administered penicillin is absorbed from the gastrointestinal tract.[1]

Penicillin V (phenoxymethyl penicillin) has been used for oral therapy in Europe for several years,[2] and recently a number of reports on the subject have appeared in American journals. It is reported to be five times as resistant to acid inactivation as penicillin G.[2] The chemical structure of penicillin V is only slightly different from that of penicillin G.

The antibacterial activity of penicillin V appears to be equal to or somewhat greater than that of penicillin G against the organisms tested. Wright and associates[2] found penicillin V to have a higher over-all activity than penicillin G against 405 test strains of *Micrococcus pyogenes var. aureus.* Martin and associates[3] reported similar findings and also cited clinical evidence for effectiveness of penicillin V against a variety of infections. Jones and Finland[4] indicated that penicillin V should be more active than penicillin G when administered orally for the prophylaxis and treatment of hemolytic streptococcal infections. White and associates[5] found that penicillin V and G preparations had similar inhibitory effects against *Micrococcus pyogenes var. aureus,* Group A hemolytic streptococci, pneumococci, *Escherichia coli* and several proteus strains.

Adequate blood levels of penicillin V appear to be achieved and maintained satisfactorily after oral administration. Wright and associates[2] tested serum levels of penicillin V and G preparations on patients given the same oral doses (200,000 units) and found the percentage of individuals with penicillin activity in the blood was (1) slightly higher in the case of penicillin G at one hour, (2) higher for penicillin V after eight hours, and (3) about equal between the second and sixth hour.

Of notable interest, Wright and associates[2] reported that penicillin V produced higher blood concentrations per unit dose than penicillin G, and that twice as much penicillin V was excreted in the urine. The latter observation indicates a greater over-all stability of penicillin V. Peck and Griffith[6] also have presented evidence that penicillin V produces higher blood concentrations and that it allows for a longer maintenance of minimum therapeutic levels than does penicillin G. The latter investigators also found that absorption of penicillin V was less affected by the presence of food in the stomach than was penicillin G.

Putnam and associates[7] tested serum levels of penicillin V and G preparations on subjects given the same oral doses (200,000 units) and found the percentages of individuals with penicillin evident in the blood were comparable.

Other reports[8, 9] confirm the relative superiority of penicillin V in producing

1. Oral penicillin. Editorial. Antibiotic Med. 1:487 Sept. 1955.

2. Wright, W.W., and others. Serum concentrations and urinary excretion following oral administration of penicillin V and comparison with penicillin G. Antibiotic Med. 1:490 Sept. 1955.

3. Martin, W.J.; Nichols, D.R., and Heilman, F.R. Penicillin V, a new type of penicillin: preliminary clinical and laboratory observations. Proc. Mayo Clin. Oct. 19, 1955.

4. Jones, W.F., Jr., and Finland, Maxwell. Blood levels from orally administered penicillins G and V. New England J. Med. 253:754 Nov. 3, 1955.

5. White, A.C., and others. Absorption and antimicrobial spectrum of penicillin V. In Antibiotics Annual 1955-1956. New York, Medical Encyclopedia, Inc., 1956, p. 490-501.

6. Peck, F.B., and Griffith, R.S. Comparative clinical laboratory studies of penicillin V and penicillin G. In Antibiotics Annual 1955-1956. New York, Medical Encyclopedia, Inc., 1956, p. 506-509.

7. Putnam, L.E., and others. Penicillin blood concentrations following oral administration of various dosage forms of penicillin V and comparison with penicillin G. In Antibiotics Annual 1955-1956. New York, Medical Encyclopedia, Inc., 1956, p. 483-489.

8. Symon, W.E. Penicillin blood levels in patients receiving oral penicillin V, oral penicillin G, and intramuscular A-P penicillin G: a twenty-four hour study. In Antibiotics Annual, 1955-1956. New York, Medical Encyclopedia, Inc., 1956, p. 473-476.

9. Linden, V.H.; Finegold, S.M. and Hervitt, W.L. Serum penicillin concentrations following oral administration of penicillin V. In Antibiotics Annual 1955-1956. New York, Medical Encyclopedia, Inc., 1956, p. 477-482.

higher blood levels than orally administered penicillin G.

There is good evidence to support claims for the safety of penicillin V in animals. Chronic toxicity tests[10] in rats and dogs fed penicillin V for two months showed no adverse effects of doses up to 2 per cent of the diet for rats and over 200 mg. per kilogram of body weight daily for dogs. Glassman and associates[11] found penicillin V no more toxic than potassium penicillin G or procaine penicillin G. Reports relative to use in humans seem to indicate that side reactions are no greater with penicillin V than with oral doses of penicillin G.[3, 12, 13]

Dosage recommendations for penicillin V are similar to those for oral dosage forms of penicillin G (see *Accepted Dental Remedies*, 1956, page 61).

The Council continues to emphasize parenteral administration as the most reliable method for ensuring availability of penicillin to the patient and recommends it as the route of choice for prophylaxis in patients who have a history of valvular heart involvement or rheumatic fever.

10. Anderson, R.C., and others. Pharmacologic and toxicologic studies with penicillin V. In Antibiotics Annual 1955-1956. New York, Medical Encyclopedia, Inc., 1956, p. 540-548.

11. Glassman, J.H., and others. The toxicological properties of penicillin V and N,N-dibenzylethylenediamine (DBED) dipenicillin V. In Antibiotics Annual 1955-1956. New York, Medical Encyclopedia, Inc., 1956, p. 534-539.

12. Quinn, E.L., and others. Oral phenoxymethyl penicillin (penicillin V) in the treatment of subacute bacterial endocarditis. In Antibiotics Annual 1955-1956. New York, Medical Encyclopedia, Inc., 1956, p. 502-505.

13. Love, J., and Weir, R. Phenoxymethyl penicillin (penicillin V) in treatment of acute Neisserian urethritis. In Antibiotics Annual 1955-1956. New York, Medical Encyclopedia, Inc., 1956, p. 521-528.

Council announces classification of additional products

The classification of products by the Council on Dental Therapeutics has been described in a previous report (J.A.D.A. 40:489 April 1950). The Council's program now provides for classification of products in Group A, Group B, Group C and Group D. Products are reconsidered periodically, and decisions are subject to change at any time that a substantial amount of new evidence becomes available. The files of the Council contain information on many drugs and dental cosmetics, and inquiries are welcome.

GROUP A

Listing of products in Group A means that at the time of their consideration, the items conformed with the provisions for acceptance established by the Council on Dental Therapeutics and adopted by the Board of Trustees and the House of Delegates of the American Dental Association. Items in this group will be listed in *Accepted Dental Remedies* and may use the Seal of Acceptance, unless otherwise provided.

GROUP B

Listing of products in Group B means that there is insufficient evidence to justify their present acceptance, but there is reasonable evidence of their usefulness and safety. These products meet the other qualifications and standards established by the Council on Dental Therapeutics. It is the Council's opinion that Group B products may be promoted for special use and study.

The Council's initial consideration of products which may be eligible for Group B listing is influenced favorably by the knowledge of further investigations then in progress. It is the policy of the Council to reconsider Group

B products each year on the basis of new evidence which may be produced in their support. Classification in this category is not ordinarily continued for more than three years.

The following additional products are classified in Group B:

Penicillin V (phenoxymethyl penicillin). (See report on page 739.)

PEN - VEE - Oral (Wyeth Laboratories): A brand of penicillin V.

PEN-VEE-Oral Tablets, 125 mg. (200,000 units) and 300 mg. (500,000 units).

V-Cillin (Eli Lilly and Company): A brand of penicillin V.

V-Cillin Pulvules, 125 mg. (200,000 units) and 250 mg. (400,000 units).

GROUP C

Listing of products in Group C means that the evidence is so limited or inconclusive that the products cannot be accurately evaluated. It is the Council's opinion that Group C products require further study by qualified investigators.

GROUP D

Listing of products in Group D means that they are unacceptable because of their demonstrated inability to meet the standards outlined in the provisions for acceptance.

The following additional product is classified in Group D: *Thermodent Tooth Paste* (Thos. Leeming & Co., Inc.) (See report on page 738).

COUNCIL ON LEGISLATION

Association testifies on four congressional bills during week of April 9

On April 11, Paul E. Jones, chairman of the Council on Legislation, appeared before the Senate Armed Services Committee to urge enactment of the House-passed bill, H.R. 9428, to establish a career incentive plan for dental and medical officers of the uniformed services. A feature of the career program would be increases in special monthly incentive pay based on time spent on active duty. Also on April 11, Floyd W. Pillars, a member of the Council, filed a statement with the Senate Committee on Labor and Public Welfare in support of a proposal (S. 3430) to establish a national library under a federal civilian agency to take over the collections of the Armed Forces Medical Library. On April 13, Ralph Creig, a member of the Council, appeared before the Senate Armed Services Committee to present the Association's views on H.R. 9429, the military dependent care bill. On that same day, Shailer Peterson, secretary of the Council on Dental Education, appeared before a subcommittee of the House Interstate and Foreign Commerce Committee to urge support of S. 849, a Senate-passed bill proposing a federal grant-in-aid program for the construction and expansion of research facilities in dental and medical schools and other nonfederal institutions. Bernard J. Conway and Howard N. Greenblatt, secretary and assistant secretary, respectively, of the Council on Legislation, accompanied the witnesses. The Association's position on the dependent care program was presented in full in the March issue of THE JOURNAL. The text of the other three statements follows:

STATEMENT ON H.R. 9428

I am Paul E. Jones of Farmville, N. C., where I am engaged in the general practice of dentistry. I am here today in my capacity as chairman of the Council on Legislation of the American Dental Association to present the views of the Association on H.R. 9428, a bill to provide for the procurement of dental and medical officers of the uniformed services. With me is Mr. Howard N. Greenblatt of Chicago, assistant secretary of the Association's Council on Legislation.

H.R. 9428, popularly known as the Career Incentive Bill, is designed to increase the attractiveness of a professional career in the dental and medical corps of the Armed Forces to the end that these corps will be staffed primarily with career officers. To assist in achieving this objective, H.R. 9428, as passed by the House, would (1) authorize constructive service credit for the purpose of determining initial rank and promotion rights for the four years spent in dental and medical school, and for the one year spent in medical, but not dental, internship, (2) authorize constructive service credit for pay purposes to dental and medical officers for the four years spent in a dental or medical school and for one year spent in a medical internship or its equivalent; presumably, that would include dental internship training, (3) authorize the upgrading of officers now on the active list to reflect the increase in constructive credit authorized by this bill and, (4) provide a program of financial incentives designed to stimulate extended periods of voluntary service on the part of dental and medical officers.

The situation with respect to career officers in the dental corps of the Armed Forces is critical, more critical perhaps than the procurement problem with respect to medical officers. At present, fewer than one fourth of the 5,800 dental officers now in the service are regular officers. Of the remaining three fourths of the dental officers now on active duty, approximately 4,000 officers are fulfilling their obligations prescribed by the Doctors' Draft Act. At the present time, the pool of dental manpower subject to this Act consists primarily of nonveteran dentists over age 43 and recent nonveteran graduates of the nations' dental schools. These graduates, as nonveterans, are subject to the Universal Military Training and Service Act as regular registrants as well as to the Doctors' Draft Act as special registrants. According to our estimates, there will be a sufficient number of nonveteran dental graduates to satisfy the reasonable requirements of the Armed Forces for dental manpower—as they now appear to be satisfying these requirements.

It is primarily to these dental graduates fulfilling their basic service obligation in the Armed Forces that the Services must direct their attention for the purpose of recruiting career officers. Generally speaking, these potential career officers in past years saw greater personal satisfaction, more educational opportunities, as well as greater remuneration in civilian dental practice. With the large pool of dental manpower available in recent years through the Doctors' Draft Act, too little attention was paid to the ultimate necessity of making a professional career in the military sufficiently attractive to the typical dental graduate or practitioner. This bill, and the administrative changes recently adopted by the Department of Defense, should do much to rectify this situation by making a career in the military comparable, professionally and financially, to a career devoted to private dental practice.

The Association's support of this bill is reflected in the following resolution adopted by our House of Delegates at its 1955 annual session in San Francisco:

"*Resolved:* That the principles underlying the directive of the Defense Department and the implementing legislation on a 'Career Incentive Program' designed to increase the attractiveness of a dental career in the armed services be approved, provided there is no increase in the number of dentists per thousand of personnel, and that there be equal consideration of dental and medical officers."

With the inclusion of the incentive pay provisions, the core of this program, the bill lacks only one feature implicit in the Association's policy: it fails to grant constructive service credit for the purpose of determining initial rank and promotion rights for a year spent in a civilian dental internship, while granting such credit for medical internships.

Unequal Treatment Accorded Dental and Medical Internship Training • Section 201(b) of this bill first provides that a doctor of dentistry or a doctor of medicine who receives an appointment under the authority of the Army—Navy—Public Health Service Medical Officer Procurement Act of 1947, as amended by this bill, is to be credited with not less than four years of constructive service for the purpose of determining lineal position, permanent grade, position on a promotion list, seniority

in permanent grade and eligibility for promotion. This Section next provides:

"A doctor of medicine appointed under this Act who has completed a one year internship, or the equivalent thereof, may not be credited with less than five years' service."

In contrast, Section 2(2) of the bill, amending the Career Compensation Act of 1949, treating longevity pay, grants a one year constructive service credit to dental and medical officers who have completed a medical internship or its equivalent; dental internships would apparently qualify for credit under Section 2(2). It is difficult to reconcile this lack of uniformity in authorizing constructive credit for internship training.

At the present time, approximately 800 dental internships and residencies are available each year to the dental graduate—one such position for every four graduates. In addition, the number of these positions is increasing each year. Dental internship programs are based on the same concepts and disciplines that govern the medical internship program and are subject to analogous standards. In fact, most dental internship programs are conducted in conjunction with the medical internship programs in the hospitals. Dental internships, like their medical counterparts, give the dental graduate advanced training in the clinical practice of dentistry as well as special training in recognized specialties of dentistry, such as oral surgery and prosthodontics.

Because the fundamental objectives of dental and medical internships are the same, the Association is firmly convinced that they should be treated uniformly in this bill. We believe such treatment would give proper recognition to the additional education and training provided under civilian dental internship programs. Therefore, we recommend that H.R. 9428 be amended so that a dentist who has completed a year of civilian internship training in dentistry will be credited with a year of constructive service for appointment and promotion purposes in the same manner and under the same conditions as such credit is to be granted to a physician.

Financial Incentive to Stimulate Extended Periods of Active Duty • The inclusion of Section 5 within H.R. 9428 so as to provide a program of incentive payments to officers who have served a total of three, six or ten years will do much to aid in the procurement and retention of career officers. The study recently concluded by the Department of Defense indicated that the disparity between civilian and military income of professional personnel was a major cause of the present inability of the Armed Forces to retain or recruit such personnel. This provision should lessen this disparity significantly so that the typical dentist serving in the military might look forward to an income pattern more closely parallel with that which is current in civilian practice. We strongly recommend that this Section, which might be termed the major feature of the career incentive program, be retained. These incentive payments by tending to equalize the financial gains from civilian and military practice, will assist in attracting dentists into the career service and will encourage dental officers now on active duty to remain in the service.

As the usual term of service under the Doctors' Draft Act or the Universal Military Training and Service Act is two years, the Committee might wish to consider strengthening this Section by making the first increment in these incentive payments take effect after two rather than three years of service. This might be of decided assistance in influencing a large group of dental and medical officers to volunteer for extended periods of service at a time when they have a right to a discharge after two years of service.

Conclusion • It is generally admitted by those concerned with the dental as well as the total health of the members of the armed services that a dental corps staffed primarily with career officers would be more efficient, better trained to its military and ancillary missions, as well as less costly to maintain. This bill, with the modification we have suggested, will assist in achieving this objective. After the long reliance on the unprecedented and inequitable Doctors' Draft Act, the Association welcomes the program and concepts embodied in this bill and in the administrative directives of the Department of Defense as a first and significant step toward a more efficient dental corps built on voluntary personnel.

In summary, we recommend to the Committee that H.R. 9428 be amended so as to authorize a year of constructive credit for the determination of rank and eligibility for promotion to dental graduates who have completed a year of civilian dental internship training, or its equivalent, in the same manner and under the same conditions that such credit is awarded to physicians who have completed a year of medical internship training.

On behalf of the Association, I wish to express our appreciation to the Committee for granting us the opportunity of expressing our views on this important legislation.

STATEMENT ON S. 3430 AND RELATED BILLS

This statement presents the Association's position on S. 3430, S. 2408, and S. 2482, each of which proposes to establish a National Library of Medicine. In substance all three bills have an identical goal: It is the establishment of a civilian agency directed by persons devoted to library administration and the health sciences to administer a national library of health science collections. To the new agency would be transferred the collections, records, and equipment of the Armed Forces Medical Library which has for many years been in reality a national library for the health sciences. Each of the bills would, moreover, authorize funds for constructing new and vitally needed facilities for the priceless collections and records of the Armed Forces library. Before discussing the specific features of the legislation, I would like to portray briefly the dental profession's great interest in the proposed library establishment.

Association's Bureau of Library and Indexing Service • At the Central Office headquarters in Chicago, the Association operates one of the world's largest dental libraries. Scientific and technical books are available for loan primarily to members of the Association. Upon request, services are provided to physicians, nurses, dental hygienists, and dentists abroad. As a special benefit, the Association also operates a package library service through which current articles from dental journals are compiled to provide up-to-date reference material on dental subjects. The Association also publishes quarterly *The Index to Dental Literature* in which all English-language articles on dentistry published in the United States and a number of foreign countries are indexed under subject and name of the author.

The library's collection includes not only bound periodicals but also the most recent dental books in the English language. There are approximately 10,000 volumes in that collection. The library has available 2,000 package libraries on 570 topics and provides reference services on individual problems. Its audio-visual services include distribution from a collection of 744 prints of dental health and technical dental motion pictures, and 2,200 individual slides, film strips, and radio transcriptions. The Association's library also provides consultative service in the nomenclature, history, and audio-visual materials. The library is directed by a dentist who is also a career librarian. It employs 15 persons, six of whom are professionally qualified in library procedures and administration. The Association's library activities have made the dental profession especially cognizant of the importance of scientific literature to the advancement of all phases of professional endeavor, the clinical and administrative as well as public health and research activities. The dental profession, furthermore, has long been actively interested in the functions performed by the Armed Forces Medical Library. An example of that close association was the appointment of Basil G. Bibby, a dentist and the director of research at the Eastman Dental Dispensary, to the Advisory Board of the Armed Forces Medical Library. Dr. Bibby has recently completed his term on that Board.

Need for a National Library of Health • Despite the excellent library facilities established by many private national organizations in the health fields, there is still a great need for a national library to collect and make available materials from all the health science disciplines. Perhaps the most compelling justification for such a national library is the invaluable service it will render to researchers within each of the many health specialties.

Those engaged in research explorations should have easy access to the full scope of literature devoted to the life sciences. The imaginative researcher makes use of seemingly abstract, unrelated, and theoretical bits of published information to forge ahead toward his goal, whether that be additional knowledge—so-called basic research, or the discovery of a new practical application of accumulated knowledge—so-called applied research. For the dental scientist, the reservoir of basic research literature in all of the life sciences is an invaluable aid. The tissues, the vascular, nervous, glandular, and lymphatic systems of the oral cavity are part of the whole anatomic network. The dental scientist, like any other researcher in the health field, depends on his imagination and versatility to adapt the findings and ideas from other biological fields to his investigations. The proposed national library, with its collections of literature encompassing all of the biological and related sciences available to researchers throughout the country, is an essential element of the health research program now being advanced through the mutual efforts of the federal government and nonfederal agencies and institutions.

I have selected the great contribution the national library can make to the health research efforts of this nation. There are many other activities which can most effectively be undertaken by the proposed national library. The acquisition, storage, and microfilming of rare limited circulation periodicals and irre-

placeable ancient documents is one example. Its services, moreover, would assist the work of many groups other than those in the health fields. Science writers, newspapermen, librarians, translators, and lawyers interested in medico-legal problems are only a few of the groups which could profitably use the national library's services.

The Armed Forces Medical Library • Much credit must be given to the Medical Department of the Armed Forces and chiefly to the Surgeons General of the Army for developing and administering what is, in fact, the finest and largest collection of health science literature and material in the world. Because of the dedication of Army and later the Armed Forces medical leaders, the library has outgrown the limitations of a purely Service library and has become the great health science library of the nation. I am certain that all of the persons who have testified or who will testify at these hearings agree that the reorganization of the Armed Forces Medical Library into a more efficient and better housed national library should take place at the earliest possible date.

The Association also wishes to express its appreciation to those persons and groups instrumental in bringing to the attention of the Congress and the public the urgent need for better facilities and increased support for the Armed Forces Medical Library. A 1944 survey of the library, sponsored by the American Library Association, disclosed directly the critical state of the library as far as facilities and administration were concerned. But more important, that survey disclosed by implication that the numerous groups vitally concerned with the library's welfare had not effectively coordinated their efforts to help solve the problem. The library association's survey stimulated not only a great advance in the administration of the Armed Forces Medical Library's services, but also a greater cohesion of the many private organizations interested in giving the library the stature it deserves. The second Hoover Commission and its Medical Task Force also contributed magnificently to the practicable solution that is now before this Committee.

The American Dental Association's Recommendations • The Association has devoted its attention specifically to S. 3430 as the preferred method for establishing and administering the proposed national library. At its recent meeting in March, the Association's Board of Trustees adopted a policy supporting the principle of S. 3430. That policy declares:
"*Resolved*, that the establishment of a National Library of Medicine as proposed by S. 3430, 84th Congress, be approved in principle."

There are two significant recommendations which the Association urges the Committee to adopt. The proposed library, under all three bills, would be designated the "National Library of Medicine." The Association believes that the full scope of the library's activities and interests should be reflected in its name. The Armed Forces Medical Library is now, and the proposed library would be, better described as the "National Library of the Health Sciences." That designation would not only have greater appeal to the several health discipline groups but would properly identify the library's full breadth of activity to the public at large. The National Institutes of Health, encompassing the many health research activities of the federal government, is appropriately named. It would be equally fitting to give the proposed national library its appropriate designation. The Association recommends that the Committee amend S. 3430 or its equivalent so that the proposed national library is named the "National Library of the Health Sciences."

S. 3430 does not specify an agency under which the proposed national library will be administered. S. 2408 and S. 2482 would establish the library within the Smithsonian Institution. The Association believes that the proposed library should be administered by an agency directly concerned with health. There are two federal agencies best adapted to administer the library's functions. They are the National Science Foundation and the U. S. Public Health Service. The Association believes that the National Science Foundation would be eminently equipped to supervise the library's activities. We recognize that, at present, the National Science Foundation has little operational authority and should remain primarily an advisory and evaluating agency. Nevertheless, the proposed library would, in the Association's opinion, be a suitable function of the Foundation's Division of Biological and Medical Sciences. The U. S. Public Health Service would also be an effective agency for administering the national library. Should the Committee decide to place the library under the supervision of the Public Health Service, the Association suggests that it be attached to the National Institutes of Health.

Finally, the Association strongly endorses that part of S. 3430 which provides for dental representation on the library's Advisory Board. That recognition of dentistry's great interest in preserving and improving this nation's finest reservoir of health science literature will stimulate even greater support from the 85,000 members of the American Dental Association.

In behalf of the American Dental Association I wish to thank the Committee for the opportunity of presenting the Association's views on this important legislation.

STATEMENT ON S. 849

I am Shailer Peterson of Chicago. I am secretary of the American Dental Association's Council on Dental Education. I am here today to present the Association's position on S. 849, a bill designed to stimulate the construction of vitally needed research facilities at nonfederal institutions. With me is Mr. Bernard J. Conway of Chicago, secretary of the Association's Council on Legislation.

Objective of S. 849 • In substance S. 849 would establish a three-year $90,000,000 program of grants-in-aid to nonfederal institutions, such as the dental and medical schools, to defray the cost of constructing and equipping facilities for research in connection with crippling and killing diseases.

S. 849 establishes four fundamental premises on which the need of federal support for the construction of nonfederal health research facilities is based. In essence, those premises are: first, that certain devastating diseases cause widespread suffering and weaken the nation's economy and military strength; second, that scientific development of health research is retarded in many areas where research skills are now available; third, that attracting more young scientists into health research depends primarily on making facilities available for their endeavors; and fourth, that freshness of vision and exploration of new ideas will be enhanced by making research opportunities available in all regions of the country under competent local auspices. It would be difficult to challenge the validity of those premises. The first is particularly applicable to the nation's health problem and economic burden caused by dental disease. The others portray a pattern of neglected research potential that has materially retarded the development of an adequate dental research program in the United States.

The Impact of Dental Diseases • The physical, social, and economic toll taken by oral diseases is staggering. Perhaps the best reflection of the nation's dental burden is the annual cost of dental health care borne by the civilian population. About one and one-half billion dollars is spent annually for private dental health services. Additionally, the federal government spends more than 100 million dollars annually for the dental health care of members of the Armed Forces and veterans. Despite this tremendous expenditure, less than one half of the population obtains adequate dental health care.

The cost of dental disease in terms of suffering and ill-health, however, is even more startling, for example:

Almost all persons suffer from oral disease at some time during their lives.

Dental caries, or tooth decay, is the most prevalent disease in the United States.

Seventy-five per cent of the people who lose teeth lose them because of periodontal diseases, so-called pyorrhea.

Twenty per cent of our children suffer from severe deforming irregularities of the teeth and jaws.

One child out of every 800 born alive suffers from the severe deformity of cleft palate.

Twenty-five per cent of the population above the age of 15 years is wearing one or two full dentures as a result of previous dental disease.

There are definite relations between oral infections and serious heart ailments such as rheumatic heart disease and subacute bacterial endocarditis.

Nine per cent of all cancers occur in parts of the mouth related to the dental structures.

These are just some of the serious dental disease problems for which there is an immediate and urgent need for an intensified research attack.

Research in the Dental Schools • A vigorous attack on the dental disease problem depends primarily on research resources within this nation's dental schools. The schools are the major contributors to our dental research effort. They are today making commendable progress in investigating the causes of all known dental disorders. But in order to meet their full responsibility, the dental schools must greatly increase their research endeavors. One of the great difficulties faced by the dental schools is obtaining the vast sums needed for expanding and equipping their research facilities.

Financial Needs of Dental Schools • The Council on Dental Education recently completed a survey of the dental schools to determine their minimum need for additional facilities and equipment for all purposes. This survey disclosed that the schools have spent over 40 million dollars during the last five years for new buildings, for remodeling and expansion of buildings, for new equipment and for replacing and repairing equipment. All of the past expenditures reported were made by the schools out of their own resources; to our knowledge, no outside assistance was provided.

The expenditures made by the institutions are particularly significant when one recognizes that, each year, it costs an average dental school between $800 and $1,000 (the dif-

ferential between tuition and cost of operation) to educate one student. The average dental school spends about $200,000 annually to make up the difference between tuition and clinic revenues and the actual cost of operating the school. With the schools required to expend such large amounts merely to continue the conduct of their programs, it is understandable that they are limited in the amount that they can spend on new buildings and expansion.

In the survey on recent expenditures, the dental schools reported their minimum need for additional funds for construction of new buildings, for expansion and remodeling of existing facilities, for new equipment, and for replacing and repairing present equipment. The 43 schools reported that they had an immediate need for 40 million dollars in additional funds. It should be emphasized that most of the schools based their estimates on their need for the next year, rather than for a three or five year period. It should be kept in mind, too, that the estimates were given without any knowledge that outside financial assistance might be available. I believe it is imperative that the schools of dentistry continue to improve their programs. That means, of course, that the schools must have the best available facilities and equipment. The cost of modern research facilities and equipment is tremendous. But research is a highly important part of the dental school curriculum; it is an essential discipline for the practicing dentist as well as for the teachers and dental scientists which the dental schools must supply.

As you are no doubt aware, the Council on Dental Education serves as the official accrediting agency for the dental schools. In my capacity as secretary of the Council, I have visited all of the dental schools and am aware of their long-range needs. Nine of the schools have physical plants which are reasonably adequate; they do, however, require some minor expansion of physical facilities and additional equipment. Three schools have modern plants but require additional facilities to provide for their present enrollment and for the increased enrollment which they wish to make possible shortly. The remaining 31 of the 43 schools need considerable funds for new buildings to modernize their total facilities, particularly to modernize their research laboratories. Conservatively, it can be estimated that each of the 31 schools requiring new buildings will need about 1.5 million dollars to modernize its facilities. Each of the three schools which must expand its present facilities needs 1 million dollars or thereabouts. Additional equipment needs for all 43 schools would amount to about 10 million dollars. The 43 dental schools now in operation, therefore, need at least 60 million dollars during the next three to five years; about 15 million dollars of that total is needed for expansion and equipment of research facilities.

Four new dental schools will soon be accepting students; two within the next six months, the other two within 18 months. A minimum estimate of their financial requirements for buildings and equipment would be 15 million dollars; about 3 million dollars of that total will be needed to construct and equip their research laboratories. Thus, the dental schools could conservatively use, during the next three years, at least 75 million dollars for construction and expansion, 18 million dollars of which is needed for construction, expansion, and equipment of their research facilities. There is every reason to believe that a considerable portion of the 90 million dollars in matching grants proposed by S. 849 could be profitably utilized by the dental schools. It is also reasonable to assume that the required matching funds would be forthcoming as a result of the stimulus supplied by available federal funds.

Association's Recommendations • The Association supports the objectives of S. 849. One of the goals of the National Dental Research Act (Public Law 755, 80th Congress) is to foster and expand dental research in nonfederal institutions. To achieve that goal, the schools must have financial assistance in the expansion of their facilities. In addition, the Association has long supported the principle that federal funds should be made available to dental schools which are not able through private resources to support their programs adequately. On four occasions the Association has testified in favor of legislation designed to assist dental and medical schools to expand and improve their facilities and equipment. One of the primary factors in establishing the Association's policy in support of federal grants to the dental schools was the tremendous cost of constructing and equipping their research facilities.

In evaluating the specific provisions of S. 849, the Association is concerned principally with three of its important features and implications.

The purpose of S. 849 is spelled out in Section 702. That section indicates that the grants will be made available to schools of dentistry among other institutions. That section also provides that the facilities constructed and equipped with grant money are to be devoted to crippling and killing diseases. The Association recommends that dental disease be added to the category of listed diseases in Section 702. Recently in testimony before the Senate Subcommittee on Health on S. 3246, a bill to increase the authorization for the National Institute of Dental Research building, Senator Hill, sponsor of S. 849, indicated to a representative of the Department of Health, Education,

and Welfare that he did not consider that S. 849 would be limited to research into the diseases listed in the bill. The Department witness indicated that he believed S. 849 would be so limited. To prevent the possibility of too stringent limitation on the availability of the grants provided within S. 849, then, the Association urges the inclusion of dental diseases as a specific category in Section 702.

The formula for equalizing federal grants among the four geographical regions designated in the legislation may arbitrarily restrict development of worthy research projects. The Association suggests that this Committee evaluate the disposition of the grants periodically, should S. 849 be enacted, to determine the practicability of the formula. The regional plan for allocating funds does appear to be equitable in terms of the location of the 43 dental schools. There are presently 8 schools in Region I, 10 in Region II, 14 in Region III, and 11 in Region IV. Two more dental schools will shortly be added to Region I: Seton Hall and Fairleigh Dickinson Colleges in New Jersey are completing arrangements this year for new schools of dentistry. One more will shortly be added to Region II: West Virginia University has approved the addition of a school of dentistry to its program.

Finally, the Association suggests that a provision be added to S. 849, or that the Committee indicate in its report on the bill, that no attempt will be made by any federal official or agency to exercise control over, or prescribe any requirements with respect to, the curriculum or to the administration of any nonfederal institution, or to the admission of applicants thereto.

In behalf of the American Dental Association, I wish to thank the Committee for the opportunity of presenting the position of the Association on this important legislation.

BUREAU OF LIBRARY AND INDEXING SERVICE

American Dental Association Film Library

The Film Library, established four and a half years ago as a section of the Bureau of Library and Indexing Service, now possesses one of the largest dental and audio-visual collections for circulation to professional and nonprofessional groups in the country: 744 prints of 143 film titles, 87 sets of 27 slide titles and 57 prints of 8 filmstrips. Six hundred and thirty-six prints of 109 titles, (an increase of 400 per cent), have been acquired for circulation during this period.

How these materials were discovered and the criteria used in their selection may be of interest to dental societies, government agencies and hospital dental staffs that plan to establish film libraries, or to producers of films, slides and filmstrips. The sources of audio-visual materials are varied. Dental schools, individual dentists, and government agencies have been the most prolific sources. State society journals, bulletins, news releases and attendance at dental society meetings have also supplied valuable leads.

All audio-visual materials are previewed and evaluated by a panel of consultants prior to acquisition. The content of the materials determines the constitution of the panel. The preview panel roster consists of general practitioners, oral surgeons, periodontists, prosthodontists, orthodontists, endodontists, dental health educators, dental school faculty, and staff members qualified to evaluate materials in their respective areas. The preview panel for a film on anesthesia, for instance, would be composed of a general practitioner, an oral surgeon and professionally trained staff members qualified to evaluate material in this subject area.

In addition to being previewed at the Central Office, films are sent to interested dental schools to be evaluated.

In evaluating visual education material, the consultants or panelists are requested to consider the following points:

1. Are any technics illustrated not acceptable? If so, please specify.

2. Does the material fulfill its declared purpose?
   A. Undergraduate teaching
   B. Postgraduate teaching
   C. Research
   D. General information
3. Does the material contain any scientific inaccuracies? If so, explain.
4. Is the content well organized?
5. Is the subject well presented?
   A. What is the quality of its photography?
   B. Continuity?
   C. Narration?
6. Are there any suggestions for improvement?
7. If the material contains some advertising, is it objectionable?

If the technics presented in the material are unacceptable or scientifically inaccurate, or if the audio-visual material is poor in part, suggestions for revision are made to the producer.

Even though the material is concerned with controversial topics such as thumb-sucking or hypnosis, it is purchased, provided it meets all the other requirements established by the reviewers and provided the technics advocated do not endanger the welfare of the patient. The intrinsic value of the technics depicted is left to the judgment of the dental societies, individual dentists and other professional groups which view the film.

This procedure does not apply to the evaluation of dental health films which will be shown to the public. The dental education concepts presented cannot be controversial. They must be based on dental health facts which conform with information published and distributed by the Association.

The Association recognizes that film making is expensive, consequently it tries to help prospective producers by offering free consultative service on all phases of the subject from planning the script to the shooting of the film and the editing of the final copy.

Inquiries from dental societies on any aspect of the Film Library program and notification of new film releases from dental film producers will be welcomed.

Since films, like books, are a means of communication, the Film Library endeavors to collect good films on all subjects covered by the books circulated by the Bureau of Library and Indexing Service.

COUNCIL ON DENTAL RESEARCH

Revision of list of certified dental materials

Since the publication of the most recently revised List of Certified Dental Materials Revised to November 1, 1955 (J.A.D.A. 52:58 Jan. 1956) the certified inlay casting waxes were retested for compliance with American Dental Association specifications. The following materials conform to American Dental Association Specification No. 4 for Inlay Casting Wax.

CERTIFIED INLAY CASTING WAXES
(A.D.A. SPECIFICATION NO. 4, FIRST REVISION)

Wax	*Manufacturer or distributor*
Baker-Blue—Regular medium	Baker & Co., Inc.
Kerr-Blue—Hard	Kerr Mfg. Co.
Security	The Cleveland Dental Mfg. Co.
Taggart's Blue	Mizzy, Inc.

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Editorials

Federal food and drug protection: a half century of progress

June 30, 1956, marks the fiftieth anniversary of the first federal food and drugs act and of the federal meat inspection act. Called "the most significant peacetime legislation in the history of our country," these acts resulted in the eventual establishment of the Food and Drug Administration, today an agency of the Department of Health, Education, and Welfare.

The fifty years of effort on the part of the FDA have borne good fruit. Today the American consumer feels a confidence—still unfelt in many lands—in the food he eats and the drugs and cosmetics he uses. The American dentist and physician have confidence that the drugs they prescribe are as represented by the labels on the containers.

Yet there are no grounds for complacency. The job has grown too big for the present FDA staff of 767 employees engaged in enforcement work. For years food and drug protection under the act has lagged behind the growth and progress made by the food, drug and cosmetic industries.

The character of our food and drug supply is changing. About a third of today's grocery sales include items that did not exist ten years ago, or were sold then only in token quantities. In the drug field a parade of discoveries and products has revolutionized therapeutics.

A citizens' advisory committee appointed in 1955 found that the staff and facilities of the FDA had not kept pace with this development, and recommended: (1) a threefold to fourfold expansion, to be accomplished over the next five to ten years; (2) a 10 per cent to 20 per cent budgetary increase in the first year; (3) a new office and

laboratory building in Washington, and (4) a greater emphasis on the use of educational methods to promote law observance and consumer understanding.

President Eisenhower, in his budget submitted to Congress this year, asked for an increase for FDA of almost one million dollars. This has been voted by the House, and approval by the Senate is awaited.

Dentists, charged with the responsibility of prescribing and administering drugs, have a vital interest in maintaining and strengthening efficient administration of the food and drugs law.

The Council on Dental Therapeutics of the Association lists in *Accepted Dental Remedies* proprietary products currently accepted by the Council, and also describes nearly all the official drugs of demonstrated usefulness for dental practice. Standards of composition established by the *United States Pharmacopeia* and the *National Formulary* are recognized as official by the Food, Drug and Cosmetic Act, and are enforced by the FDA.

Many dangerous and substandard drugs have been removed from the market by the activities of the FDA. A new drug license must now be obtained before a new drug may be introduced into interstate commerce. America has the finest food and drug supply of any country in the world.

Dentistry, together with other professional groups, food and drug enforcement officials, consumer groups, and nearly all manufacturers in the food, drug, chemical and cosmetic industries, acclaims the present legislative proposals to strengthen the FDA. The proposed budgetary increases will help the FDA deal with the growing problems created by the host of new products coming on the market, and will ensure that the present high standards are preserved.

Additional income assured for dental and medical officers in the Armed Forces

It is hoped that the critical shortage of career dental and medical officers in the Armed Forces will be eased with the signing of H.R. 9428, the military career incentives bill, by the President on April 30. The new law is designed to make careers in military dentistry and medicine more attractive by providing, in addition to the present $100 a month special pay, increases of $50 a month each, at the end of two, six and ten years of service. In addition, time spent in medical and dental school and in civilian medical (but not in dental) internship counts as military service for purposes of rank and promotion.

Some immediate, positive step had to be taken to enhance the military career for dental and medical officers. The number of experienced dentists and physicians eligible for call under the draft law was dwindling rapidly.

Since World War II the nation's dentists have found many opportunities in civilian life at incomes far beyond those of the military dentist. According to a 1953 survey of dental practice,[1] the mean net income in 1952 for independent (nonsalaried) dentists who answered the income question was $10,873. In 1952 the pay of captains in the dental corps of the Army and Air Force and lieutenants in the dental corp of the

Navy was approximately $6,900. Thus such dental officers received something less than two thirds the income of their professional colleagues in private practice.

The great differential in income has been a factor in the decision of many career military dentists to leave the service and return to civilian practice. The new law should help to establish a military dental career that will attract volunteer dentists. The military departments have already expressed hope that many dentists now on active duty under the draft law will decide to continue their military careers after completion of their two years of obligated service. Those who do so will receive an immediate pay raise under the new law.

1. American Dental Association, Bureau of Economic Research and Statistics. The 1953 survey of dental practice. II. Income of dentists by location, age and other factors. J.A.D.A. 48:68 Jan. 1954.

Artificial sweeteners

A recent report of the National Research Council[1] on the use and safety of artificial sweeteners in foods is welcome news to the increasing number of persons who, for reasons of health, are compelled to substitute artificial for natural sweets. From the standpoint of the dentist, the report also opens up a wide new field that demands a thorough exploration by researchers interested in the prevention and control of dental decay.

If the present conclusions of the Council are supported by further evidence, it is not unwarranted to speculate that the widespread use of artificial sweeteners in desserts, and particularly in between-meal snacks, will reduce materially the incidence of dental caries among tomorrow's children.

The review of the safety of artificial sweeteners was made by the Food Protection Committee of the Food and Nutrition Board of the Council. Its analysis embraces the literature back to the extensive investigations undertaken for the Referee Board of Scientific Advisors to the Secretary of Agriculture in 1911 to determine the influence of saccharin on the nutrition and health of man. More recent studies have also tested the influence of the cyclohexylsulfamates, known as "cyclamates," presently widely used as sweeteners. Saccharin is estimated to have 300 to 500 times, and the cyclamates some 30 times, the sweetening power of sucrose.

The Food Protection Committee concludes:

> There is no evidence that use of the nonnutritive sweeteners, saccharin and cyclamate, for special dietary purposes is hazardous. In the case of cyclamate, unrestricted use in foods and beverages may result in the formation of soft stools, but probably without interference with other functions of the intestine and without hazard to health. . . .
>
> The maximal amount of saccharin likely to be consumed is not hazardous. No adverse synergistic effect was observed in combination with saccharin and cyclamate as tested.
>
> These materials "should be subject to continuing observation for possible deleterious effects under prolonged and varying conditions of use and should be reappraised whenever indicated by advances in knowledge."

Although the studies made on the toxicology and pharmacology of cyclamate indicate that this substance is relatively nontoxic, in the human there has been study of its effects only on adult men. Further study of cyclamate will permit added confidence in evaluating the safety of the chemical for general use.

In view of these conclusions by the National Research Council, dentists need have no hesitancy in recommending the use of artificial sweeteners in the temporarily restricted diets of patients who are noticeably susceptible to dental caries. In fact, the time may come when nutritionists will advise the substitution of accepted artificial sweeteners for the excess of natural sweets commonly consumed by Americans—an excess which is now known to be injurious not only to dental health but to general health as well.

1. Food Protection Committee. The safety of artificial sweeteners for use in foods. Washington, D. C., National Academy of Sciences, National Research Council, Aug. 1955.

Three societies celebrate a century of service

Two constituent societies and one component society of the Association this year commemorate the one hundredth anniversary of their beginning. To the Michigan State Dental Association goes the distinction of being the first state dental society to have completed one hundred years of continuous existence. To the North Carolina State Dental Society goes the distinction of weathering in its infancy the War between the States and emerging after twenty years into one of the nation's leading dental societies. To the St. Louis Dental Society goes the distinction of being the first component dental society in the country to record a hundred years of service.

Soon other societies will crowd these three for the limelight. During the next three decades[1] more than half of the state and territorial dental societies will enter the centennial circle. But as of this year only three can share that honor. Each in its own way and to the limit of its resources has contributed to the advancement of its members and to the welfare of its community. Combined, their contributions have helped place the profession of dentistry on the high plane it holds today.

THE JOURNAL takes this occasion to pay its respects to these centenarian societies and especially to the workers within their ranks who made them great; for each organization is great, not because it has lived a hundred years but because of the manner in which it has lived them.

Someone once said that an organization is great when it keeps abreast of the times and meets the needs of the people. The dental societies of Michigan, North Carolina and St. Louis have met those criteria and, having met them, can take a bow.

1. Bulletin of the History of Dentistry, vol. 4, no. 3, March 1956.

The Reader Comments

THE JOURNAL *devotes this section to comment by readers on topics of current interest to dentistry. The editor reserves the right to edit all communications to fit available space and requires that all letters be signed. At the request of the author, signatures will be deleted before publication. Printed communications do not necessarily reflect the opinion or official policy of the Association. Your participation in this section is invited.*

The Editor

FLUORIDE DENTIFRICES

Some time ago I criticized the "addendum" to the article by Muhler and others published in the November 1955 issue of THE JOURNAL. Radike's reply to my criticism (THE JOURNAL, February 1956) strengthens rather than weakens the points I tried to make.

First of all, it shows that the study I felt they should not have quoted was known to them for many years and, therefore, they had plenty of time to obtain my interpretation of it. It also reveals that the 23 per cent reduction obtained in the study I felt should have been mentioned along with the one they actually quoted did, at one time, seem important to Procter & Gamble, for apparently it was this observation which prompted the company to offer financial support for our clinical studies, which until that time had been "supported" only to the extent of free dentifrices.

Although the listing in Radike's letter of the negative observations in our pilot studies on the use of dentifrices to which sodium fluoride had been added probably was designed to create further doubts as to the value of sodium fluoride as a dentifrice constituent, it also strengthens a point made in my letter, namely, that fluorides must be "suitably combined in dentifrices" in order to be effective.

That Procter & Gamble has had difficulty in doing this with sodium fluoride is suggested by the risky nature of the fluoride dentifrice formula (Crest) which it is now marketing. Certainly, if it were not necessary to use a highly acid dentifrice (as low as pH 5.3 in Rochester samples) in order to get a fluoride effect, the resultant risk of increased tooth brush erosion would not be run. Neither is it likely that if it could have been avoided, the company would choose a dentifrice formula which, on the basis of laboratory tests, will cause darkening of the teeth in some dentifrice users.

Since my interpretation of our own sodium fluoride dentifrice studies has been questioned, a restatement of my views is probably in order. They follow:

1. It was a mistake on my part to include the results of two unpublished studies in our tabulation of fluoride dentifrice results.

2. The negative results of our studies led us to believe that the dentifrice base was very important in determining the effectiveness of added fluorides. They also suggest that the relative effectiveness of different fluorides cannot be reliably compared by studies such as those of Muhler and others in which different fluorides are combined in the same dentifrice base.

3. Dentifrice tests should be carried out in groups of children who are encouraged to clean their teeth either by parents or as part of an existing school dental hygiene program. If this is not done, dentifrices probably will not be used, and results become meaningless. It is because we had no evidence that the dentifrice was used to any significant extent in the study quoted in the "addendum" (Wellock and Bibby's study, 1948) that we declined to publish a full report on it. In my opinion, the study was not "well conducted" as Radike believes, and the observations have less value than those of the first year of our 1946 study in which it is known that the dentifrice was used.

4. Knowing that we did not believe the two studies in question were sufficiently sound to be "published in detail," it was out of order for the authors to base possibly misleading interpretations on one of them without either quoting the order or inviting a direct comment from us.

5. A useful purpose could be served by encouraging a full discussion in these columns of the claims and hazards of various fluoride dentifrices.

Basil G. Bibby, Rochester, N. Y.

LETTER FROM A PATIENT

This is a letter to the dentist from his patient. I admire your great skill in filling my teeth. I enjoy your ability to entertain me while I am receiving "drilling" entertainment at your hands. I appreciate the advice you have given me from time to time about the care of my teeth. But I have one suggestion to make which I think could be of immense help to all of us.

When we leave our dentist, we usually forget all the advice he has given us. Won't you as our dentist help us by preparing a small card which we can place on our bathroom mirror, giving us the advice which we need to prevent caries. I should think it might read something like this.

"Rules to Prevent Tooth Decay: (1) Rinse your mouth out with warm water within five minutes after eating a meal. (2) Avoid soft drinks and candy, but if you do indulge, rinse your mouth out as soon as you have finished. (3) Before retiring at night, use a tooth brush and, if your teeth need it, dental floss as well."

If such a card were given to all patients, more of them will thank you than perhaps you realize.

Jerome Davis, West Haven, Conn.

HYPNOSIS IN DENTISTRY

Regarding THE JOURNAL'S editorial and letter on hypnosis from Dr. Burgess in the April issue of THE JOURNAL, please note that the American Society of Psychosomatic Dentistry only approves courses given by its own few instructors. It is a small group of about 100 dentists who are utilizing a name that seems to represent all American dentists using hypnosis.

The seminars to which they refer have been attended by about 2,000 dentists and physicians throughout the United States and have been sponsored by many dental and medical groups, including Marquette University Postgraduate School, Ohio Valley Hypnodontic Society, Chicago Society of Psychosomatic Dentistry, Chicago Society of Clinical Hypnosis, Birmingham Society of Obstetrics and Gynecology and others.

The Chicago Society of Clinical Hypnosis, with a membership of almost 200 physicians and dentists, has membership qualifications at least as rigid as those of the A.S.P.D. The great majority of our members received their training from seminars on medical and dental hypnosis and are utilizing this teaching in their medical and dental practices.

Panelists for these seminars are physicians with a combined experience of over 100 years in hypnosis, specializing in all phases of medicine, surgery and psychiatry, as well as similarly trained dentists who are present or past officers of much larger dental psychosomatic groups than the A.S.P.D.

The publicity of an editorial on the basis of one small group's opinion does a great disservice to American dentistry.

Pat McFate, executive secretary, The Chicago Society of Clinical Hypnosis

TEETH FOR RESEARCH

In the February issue of THE JOURNAL an article appeared under "Research" titled "Help!—Fairies Compete with Researchers for Teeth." It described Dr. Schatz's problem in obtaining deciduous teeth for research purposes. I think I have the answer for Dr. Schatz.

Approximately two years ago, the thought struck me, "Why give the young child his badly broken down and infected deciduous tooth after it is extracted? Why not substitute a plastic tooth, which is much nicer and, of course, more sanitary for the child to take home?" After looking around a little bit, we found a company which makes translucent maxillary models, and the firm was happy to supply us with plastic deciduous teeth.

The Hartford Health Department's dental program is for preschool age children, and in the many hundreds of extractions done during the course of a year, we have yet to hear an objection to the child's receiving a plastic tooth as a substitute for his own.

Leonard F. Menczer, Public Health Dentist, Hartford, Conn.

SCHOOLS SHOULD TEACH HYPNOSIS

The editorial comment in the April issue of THE JOURNAL concerning training seminars in hypnosis has a basic validity which is unquestionable. It is important, however, to recognize these so-called seminars as the response to a demand for training by the dental practitioner. Without this demand, the seminars would not have been created.

The dentist's desire to explore areas which may help him in his professional function is part of the normal scientific curiosity which has led to the growth and development of dentistry. The nature of scientific curiosity is such that satisfaction will be sought through whatever channels exist—even though they be inadequate. Unfortunately, the fault often lies in the inertia of the medical and dental schools and their reluctance to accept the needs of the

profession which they have the responsibility of training.

The solution to the problem of controlling the training of dentists in hypnosis lies only in the acceptance of training as the function of trained personnel in the universities, the creation of research and teaching centers under adequate supervision and the establishment of educational standards. Research and teaching must go on together, and it is rather ridiculous to postpone teaching until research is complete, as it is unscientific to limit the development of a concept because someone may find it unacceptable.

The comparison of the use of hypnosis with the use of a drug and the use of precautions set up by the Pure Food and Drug Act to test its efficacy is an invalid oversimplification. The evaluation of hypnosis itself is meaningless without considering the ability and training of the dentist who uses it and his own personality structure. Hypnosis is not a single phenomenon acting alone but rather a direct function of the person who uses it. This evaluation is completely individual and as complicated as the mind itself. It is because of these problems that competent training is necessary, and it is the obligation of the schools to make such training available.

It was through the cooperation of the American Hypnodontic Society and Long Island University that a training program in hypnosis was established for dentists at Long Island University. This program is now in its second year of operation, and a report on it was published in the October 1955 *Journal of Clinical and Experimental Hypnosis.*

Arthur H. Wald, D.D.S., Brooklyn.

PREVENTION OF DENTAL CARIES

An article in the April JOURNAL by Kesel on caries prevention compiles recommendations to achieve a sizable reduction in the decay rate. Since little has been accomplished with much of this knowledge available for half a century, it may be time for a realistic reappraisal of the virtues or practicability of the current preventive measures.

It was our experience after visiting many tribes with decay rates for which we would gladly settle, that their diet may be rich or poor in carbohydrates, even in sugars, that they never brush their teeth and that their water supply may be free of fluorides. The biochemistry of their diets varies extremely; they have one trait in common, which is a biophysical rather than a biochemical one: the higher range of loads applied to the teeth whether it is in crushing crustaceans, chewing of leather, opening of nuts or simply in the use of hard-crusted unpackaged bread.

The purpose of our teeth is a physical and not a chemical one. Having lost their motive for existence, our teeth are taking a course leading us fast toward becoming *homo edentatus plasticatus;* it is doubtful whether we can forestall this fate with chemical maneuvers.

Today we know of the extensive, all-pervading network of the organic enamel matrix with its metabolic potentialities; we are aware of the potent variable of pressure in biology and in physics, and we know what lack of loads does to the structure of the femur, particularly of the immobilized child. As the tooth in all its strata is no longer considered inert, it must be recognized that either lack of loads with our soft foods or higher compression cannot fail to influence its structure throughout.

Instead of the frustrating insistence on narrow dietary regimes, attempt unpackaged, hard-crusted bread, as the ends of rye or corn bread, pumpernickel or Italian bread at the earliest age. Our trend to strained, chopped baby foods, euphemistically termed solids, inculcates an aversion to chewing. Parents should realize that their infants will not choke on less cooked and harder foods, and that the tooth structure will greatly benefit thereby.

Our teeth need a heavier load—in addition to our customary soft diet. This aim can be achieved.

H. H. Neumann, New York.

International Correspondence

NEWS FROM GREAT BRITAIN

Sir Wilfred Fish, chairman of the Dental Board of the United Kingdom, writes that there are three dates that have special significance in the history of dentistry in Great Britain. One is 1878, when the first dentists' act was passed protecting the titles of "dentist," "dental surgeon" and "dental practitioner." This act made illegal the use of any of these titles by any person whose name did not appear on the dentists' register, and it made the General Medical Council, which already kept a register of medical men, responsible for keeping the dentists' register too.

This meant that the General Medical Council was responsible for disciplining the dental profession and in extreme cases could erase the name of a dentist from the register. The Council also prescribed the minimum standard below which the dental course leading to qualification for registration might not fall. To help it perform its duties, one dentist, who was without exception always a qualified medical man as well as being a dentist, was elected to the Council as an additional member.

The second date is 1921, when another dentists' act was passed setting up the Dental Board composed of six dentists, three physicians and three representatives of the governments of England, Scotland and Northern Ireland. The Board's first chairman was a layman who was also a privy councillor and a baronet, Sir Francis Dyke Acland. This Board proceeded to keep the dentists' register and was responsible for discipline, but its decisions were subject to ratification by the General Medical Council. Its finances also were subject to review by the Council before being laid on the table in both Houses of Parliament. It was not, however, the supervision by the Council which caused any difficulty, for that simply worked like a subcommittee reporting back to the main committee, and the Board performed many functions with which the General Medical Council had no concern. It was the lack of academic representation on the Board that prevented it from fulfilling completely the duties of professional government.

Hence 1956 is the third significant date, for on March 15, the Royal Assent was given to another dentists' act saying that on a certain appointed day the Dental Board shall hand over its assets, liabilities and functions to a new body, a "general dental council." Moreover, the General Medical Council shall also hand over to the new General Dental Council the functions relating to dentistry that it has hitherto performed. From that day the Dental Board will cease to exist, and the dental profession will be self-governing; the General Medical Council will have no further concern with its administration.

Now it has fallen to the Dental Board to decide which should be the appointed day for the transfer of function. What is rather intriguing is that without realizing the special significance, we have asked the Lord President of the Council to petition Her Majesty that the date be July 4. That date will have a significance as great for British dentistry as it has for the citizens of the United States.

We hope it will be as fruitful in stimulating progress and that the happy relations which exist between two countries will be reflected in the friendship which will continue to fluorish between British dentistry and our medical colleagues to whom we owe a great debt of gratitude and friendship.

It is good that we should now be administratively independent, but academically and professionally the closest ties still hold us together, and that is good too.

RESEARCH

Prof. Martin Rushton sends a report on the Fourth Annual Meeting of the British division of the International Association for Dental Research which took place at Liverpool April 13 and 14 and was attended by 85 members and guests. Thirty papers representing all aspects of dental science and oral pathology were presented and discussed, and there were also seven demonstrations. This is the largest meeting which the division has yet held. A longer meeting probably will be needed next year to allow the acceptance of all the suitable contributions.

At the dinner, which followed a cocktail party given by the staff of the School of Dental Surgery of the University of Liverpool, the Councillor announced that membership of the division was now 50. A particular welcome was given to two members of the North Ameri-

can division, Capt. J. A. English, U.S.N., and Dr. Greulich, both of whom contributed to the success of the meeting.

At a business meeting, considerable concern was expressed at the difficulties and delay experienced by members in obtaining publication of their work in suitable journals. The delay in some journals had reached 18 months, and in others the standard of reproduction of illustrations was poor and unsuitable for histological papers. On the resignation of Maurice Stack as honorary secretary after four years' excellent service, C. H. Tonge of the department of anatomy, University of Durham (King's College, Newcastle) was elected to this post.

ITEMS OF INTEREST

The American Dental Society of London met April 18 and installed Sidney Rosenberg as president for 1956-57. George Cuthbertson continues to serve as secretary. There are at the moment 15 dental officers serving in the United States Forces in Great Britain who have taken the privilege of becoming temporary members.

The Continental Dental Society, most of whose members obtained their original degrees in Europe, presented a splendid program at its meeting on April 27-29.

G. H. Leatherman
D.M.D., F.D.S., R.C.S., F.A.C.D.

NEWS FROM THAILAND

In 1955-1956, there were 14 graduates from the School of Dentistry, University of Medical Sciences, in Bangkok, Thailand. Of this number, four were men and ten were women. The graduation ceremony was held at Siriraj Hospital on April 2, and Their Majesties, the King and Queen of Thailand presided at the presentation of certificates to the graduates.

In dentistry, the course of study covers a period of six years; the first two are the predental course in which the undergraduate studies organic and inorganic chemistry, physics, zoology, biology, comparative anatomy and the English language. The remaining period of four years is divided into the preclinical and clinical programs. Altogether, 6,073 hours are spent in the four year program. Of this number 1,500 are spent in operative dentistry, 1,224 in prosthetic dentistry, 796 in maxillofacial surgery, 400 in anatomy, 400 in physiology and biochemistry and 394 in orthodontics.

As our country maintains a state of preparedness, there is a Royal Decree under the Conscription Law stipulating that all male graduates serve for at least two years in the military service. Dental surgeons are assigned to their posts with the rank of lieutenant. The Royal Decree will remain in force until the military need is filled, and it is too early to predict when the Decree will be revoked, since the small number of male graduates is insufficient to fill military requirements.

C. Ratanaphaisal

NEWS FROM THE REPUBLIC OF ARGENTINA

On April 13 the Argentine Dental Association opened the new addition to its building which will provide larger and better accommodations for its members. Of special interest is the library, which Margarita Muruzábal has built into one of the most complete collections and which now is adequately housed.

A new dental school, scheduled to open this year, has been founded in Tucuman, capital of one of the interior provinces of the Republic. There are now four dental schools in Argentina, including the one in the federal capital which is classed as a college.

Recently elected officers and directors of the Circulo Odontologico del Norte are Raúl D. Petrossi, president; Alfredo Cogorno, vice-president, and Eduardo Crawley, secretary. Also elected were Marcos Kopelioff, assistant secretary; Emilio Ferretti, treasurer, and Jorge Molnar, assistant treasurer.

The magazine *La Semana Medica* has established a prize for the best paper of the year. Antonio Galmarini and Alejandro Brero were prize winners. Dr. Galmarini was honored for his paper "Unidad Functional" and Dr. Brero for "Fisiologiz Clinica."

Ricardo Augusto Crespi,
correspondent from Buenos Aires

Washington's Group Health Association, Inc., once again has placed itself in the national spotlight, this time by offering dental care on a monthly prepayment basis.

GHA, as it is better known, started out in the late 1930's as a prepaid medical care plan for federal employees in the Home Owners' Loan Corporation and their dependents. Almost immediately it became involved in court action centering around the government's charge that its medical staff was harassed and coerced by organized medicine. The case eventually was carried to the Supreme Court, with GHA victorious.

Membership was extended to all federal employees and, later, to Greater Washington residents generally, all on a group basis. Next step was to open the rolls to individuals. Then in 1949 GHA opened a dental clinic, with services being offered on a fee basis to members.

Now this consumer-directed enterprise has decided to make dental services available on a prepayment basis, provided a sufficient number of members signify their intention of joining before the end of July. The early response has been large enough to make it virtually certain that the program will be inaugurated.

The prepayment charge will be three dollars monthly per eligible covered individual. Thus a married couple with two children would pay $12 a month. All members of a family must be covered, with exception of children under age six. Inclusion of children under six would be optional on the member's part.

Before being accepted into the plan, members and dependents must have dental faults remedied and their mouths placed "in good condition," as determined by the dental director of GHA. This would be done at their own expense, on a fee basis, either privately or in the GHA clinic.

At the three dollars monthly scale, the following services are offered:

Prophylaxis annually or as needed; roentgenograms annually or as needed; examinations annually or as needed; topical sodium fluoride application for children at the proper ages.

Emergency care for relief of pain; restoration of individual teeth with proper filling material; construction, maintenance and repair of partial and complete dentures as needed including replacement of individual teeth requiring extraction, except third molars and second molars when the adjoining first molar is present.

Also, such minor oral surgery as extractions and removal and treatment of tumors and cysts arising from teeth; root canal treatment and filling; periodontal treatment; space maintenance to preserve arch length.

Prepayment benefits will not include orthodontics or major surgery.

CONGRESSIONAL ACTION

The 84th Congress is going into its final lap, with adjournment expected by July 15. Both Administration and Democratic forces are redoubling their efforts to make a good national health legislation record to take into fall campaigning.

Although the outcome is still in doubt, results could well be new laws to:

Authorize federal construction grants for medical and dental research facilities in teaching institutions and hospitals.

Establish a National Library of Medicine, absorbing the Armed Forces Medical Library and providing a new, adequate home for the huge collections.

House the National Institute of Dental Research in a new building of its own at

National Institutes of Health, in suburban Bethesda, Md.

Increase federal financial support of dental research, both for intramural activities at the National Institute of Dental Research and for grants-in-aid to outside investigators.

Inaugurate a continuing survey, nationwide on a sampling basis, of sickness and disability, to be conducted by the U. S. Public Health Service.

All of the bills mentioned have made substantial progress in this session of Congress, and their enactment is indicated. In addition, dentistry is affected by such other legislative measures as amendment of the social security law, health care benefits for servicemen's dependents and salary increases for military medical and dental officers.

The social security and dependents' care bills are virtually certain to be passed and signed into law. The military pay bill was signed by President Eisenhower on April 30, thus making it possible for the increases to become effective May 1 of this year.

Republicans and Democrats alike, in both Senate and House, are eager to put through a bill that would provide federal matching grants to encourage improvement and expansion of medical and dental education facilities. The White House also wants such legislation enacted. Its course, however, has been obstructed by the threat that the racial segregation issue would be raised against it.

Although hope for professional school construction aid has been all but abandoned, as far as Congressional action in 1956 is concerned, it is probable that the subject will be a live one on Capitol Hill next year after convening of the new 85th Congress.

Association Affairs

STATE SECRETARIES MEET IN CHICAGO JUNE 4-6

The Eighth State Secretaries' Management Conference will be held June 4-6 in the Central Office. Among the topics on the agenda are criteria for evaluating the programs and administration of a state dental society (Reginald H. Sullens, assistant secretary, Council on Dental Education, presenting a paper prepared by Harold Hillenbrand, Association secretary); insurance programs sponsored by state societies (Richard Evans and Edward H. Lindberg, insurance consultants, and S. Mayo Silverman, secretary, Southern California State Dental Association), and the methods of conducting conferences by the state organizations (Andrew M. Ballentine, secretary, Tennessee State Dental Association, and Ray Cobaugh, executive secretary, Pennsylvania State Dental Society).

Also to be considered by the conferees are effective state society programs of hospital dental services (Herbert O. Hoppe, secretary, Wisconsin State Dental Society) and the handling of problems relating to ethics and grievances of patients (Bernard J. Conway, secretary, Council on Legislation, and Wallace N. Kirby, chairman, section on practice administration, American Dental Association).

ASK CHANGE OR REVOCATION OF FTC LABORATORY CODE

The American Dental Association last month asked the Federal Trade Commission to amend or revoke FTC's recently issued Trade Practice Rules for the Commercial Dental Laboratory Industry on the grounds that the Rules "do not accurately describe the legitimate functions of the dental laboratories or the proper relation between the dentist and the commercial laboratory."

The Association's Council on Dental Trade and Laboratory Relations, in a letter signed by its chairman Walter E. Dundon, asked that a formal hearing be held with the FTC so that the Association's point of view could be detailed to the Commission. Dr. Dundon proposed that the Rules be suspended in the meantime.

The Council pointed out that the functions of the laboratories as well as the relation between the dentist and the laboratory have been spelled out in state dental practice acts.

In asking for changes in the Rules, the Council proposed also that the dental laboratory industry be prevented from dealing with the public, "a practice which stimulates the purchase and sale in interstate commerce of devices injurious to health."

TEN SYMPOSIUMS PLANNED FOR ANNUAL SESSION PROGRAM

Dental photography and hypnosis in dental practice are among the subjects of panel discussions on the scientific program at the Association's annual session in Atlantic City, N. J., October 1-4. Ten symposiums are planned. It is the first time that hypnosis and dental photography have been selected for symposium subjects at an Association annual session.

Moderators for a number of the discussions have been announced. Irwin A. Epstein of St. Paul will moderate a panel on present day endodontic practices; Reidar F. Sognnaes of Boston, "Oral Cancer—Clinical Implications of Recent Research," and Harold W. Krogh of Wash-

ington, D. C., "Anesthesia for Operative Dentistry."

Serving as moderator for a panel on efficiency in dental practice is Wallace N. Kirby of Downers Grove, Ill. Other moderators and their subjects are: Henry M. Tanner of Bethesda, Md., "Current Status of High Speed, Super Speed and Ultrasonic Cutting Instruments"; George C. Paffenbarger of Washington, D. C., "Pitfalls in Handling Filling Materials"; Harold K. Addelston of New York, "Anesthesia for the Child Patient"; Wilbur O. Ramsey of Baltimore, "Viewpoints on Hypnosis in Dental Practice"; Charles H. Patton of Philadelphia, "Health Problems of the Dentist," and Samuel C. Miller of New York, "Periodontics for the General Practitioner."

In addition to the essay program, the scientific session will include projected clinics, table clinics, motion pictures, scientific and commercial exhibits. Exhibitors in the scientific exhibit must have submitted applications for space by June 15 in order to have their exhibit listed in the preliminary program to be published in THE JOURNAL. The final deadline for exhibit applications is July 15. Applications may be obtained from the Director of Scientific Exhibits at the Central Office.

Stephen Heiser

Harry Hillman

Garth Bentley

EXPERTS TO ADVISE EDITORS AT JOURNALISM CONFERENCE

Publication analysis will be a feature of the Conference on Dental Journalism to be held July 6 and 7 at the Central office. The Conference is under the sponsorship of the American Association of Dental Editors and the Association's Council on Journalism.

Four tables, each with a consultant working in the publications field, will be set up, and the dental editors will bring their publications to the experts for individual analysis. The consultants are: Fred Bartz, president of the Harry Baird Corporation, advertising typographers; Stephen Heiser, photographic illustrator

Fred Bartz

for national magazines; Garth Bentley, author of *Editing the Company Magazine,* and Harry Hillman. Mr. Hillman, now retired, has had 51 years of experience in printing and publishing.

In addition to the consultants' workshop, a number of papers will be presented on problems concerning dental publications. Speakers include John J. Hollister, Association business manager; Willard Ogle, editor, *Texas State Dental Journal;* Mr. Walter Yust, editor, *Encyclopaedia Britannica;* Marcia Winn, feature writer, *Chicago Tribune;* F. D. Ostrander, Belle Fiedler, B. H. Johnson, and Donald E. Compaan, each representing journals in the dental field.

JOHN CARR TO HEAD CIVIL DEFENSE COMMITTEE

John G. Carr, executive secretary of the New Jersey State Dental Society, has been appointed chairman of the Subcommittee on Civil Defense of the Association's Council on Federal Dental Services. The appointment was made by President Bernerd C. Kingsbury in May. Dr. Carr succeeds Carl Sebelius of Nashville, Tenn., who has resigned.

DIRECTORY LISTS 97,529 DENTISTS; 87,000 ARE ACTIVE

There are 97,529 dentists in the United States, 87,000 of whom are active professionally, the Bureau of Economic Research and Statistics announced in May. The Bureau's estimate was based on the newly-issued 1956 American Dental Directory.

Including both the active and retired dentists, the ratio of dentists to population is one to 1,667 persons. Last year, the ratio was one for each 1,669 persons. The eastern part of the country and the west coast continue to be served by more dentists in proportion to population than any other part of the country. The least favorable ratio continues to exist in the Southeast area, although this region continues to have the greatest gains proportionately.

The population per dentist in each area is: Middle East, 1,402; New England, 1,497; Central States, 1,683; Northwest, 1,817; Southwest, 2,962, and Southeast, 3,076.

BUREAU REVISES TWO PAMPHLETS ON DENTAL HEALTH

Two pamphlets, *Orthodontics: Questions and Answers* and *The Care of Children's Teeth,* have been completely revised, announces the Bureau of Dental Health Education. The orthodontics pamphlet discusses irregularities in tooth position and jaw relationship and what may be done about them. A new feature is a two page illustration showing how appearance and function of the teeth and mouth are improved by orthodontic treatment. The pamphlet sells for the following prices: 25 copies, $1.85; 50 copies, $3.10, and 100 copies $5.15.

The Care of Children's Teeth is directed to parents. Its question and answer format and its extensive coverage—deciduous and permanent tooth development, dental examinations, treatment, dental health habits, diet and nutrition and sources of dental information—are designed also to provide a ready reference for teachers. *The Care of Children's Teeth* is priced at 25 copies, $2.40; 50 copies, $4.10, and 100 copies, $6.90. Both booklets may be obtained from the Order Department at the Central Office. Sample copies are available from the Bureau of Dental Health Education.

RECORD NUMBER TAKE APRIL NATIONAL BOARD EXAMS

The number of dental graduates taking the National Board examinations has again risen to a new record. Some 4,094 persons were tested in the April 2 and 3 testing period, according to William A.

A three day working conference sponsored by the Council on Dental Health May 14-16 in Chicago was attended by 100 representatives of state dental societies and state health departments. Conferees discussed various aspects of dental health care programs, both private and governmental. Among speakers were (above, seated, l. to r.): C. A. Kulp, Ph.D., dean, Wharton School of Finance and Commerce, University of Pennsylvania; John W. Stone, Michigan Department of Health; Norman F. Gerrie, assistant chief dental officer, U. S. Public Health Service; (standing) Donald J. Galagan, assistant chief, division of dental public health, USPHS; Herbert K. Abrams, M.D., medical director, Union Health Service, Inc., Chicago; Mr. Bernard J. Conway, secretary, Association Council on Legislation; Albert L. Borish, chairman, council on dental health, Philadelphia County Dental Society, and R. F. D. Johnson, chairman, Association Council on Dental Health.

Below: Conferees in a workshop group listen as Maurice J. Friedman of Little Rock, Ark., opens the discussion on "An Effective State Public Health Agency Dental Division."

Dickson of Minneapolis, chairman of the Council of the National Board of Dental Examiners. The number tested a year ago was 3,845.

Grades are being sent to the schools in time for distribution before graduation, Dr. Dickson stated. The next testing period is December 3 and 4.

FIVE DELEGATES REPRESENT ASSOCIATION AT F.D.I. MEETING

Five official delegates are representing the Association at the 44th annual meeting of the Fédération Dentaire Internationale in Zurich, Switzerland. The May 28 to June 3 meeting is being conducted in conjunction with the 70th annual congress of the Swiss Dental Association.

Chairman of the delegation is Harold Hillenbrand, Association secretary and honorary vice-president of the F.D.I. Other delegates are Bernerd C. Kingsbury, Association president; LeRoy M. Ennis, member of the Council on International Relations; Obed Moen, and Percival C. Lowery. Drs. Moen and Ennis are F.D.I. vice-presidents.

Association members can become members of the F.D.I. for $10 a year. Membership benefits include a subscription to the *International Dental Journal,* quarterly news bulletins and reduced fees for international meetings. Checks should be sent to Dr. Moen, 6 Main St., Watertown, Wis.

Alternate delegates are Earl H. Albert of Lebanon, Pa.; Thomas P. Fox of Philadelphia, who will serve also as official representative of the U. S. Department of Defense; W. F. Huber of Milwaukee; R. G. Keyworth of St. Paul, and G. Hewitt Williams of Chicago.

SUBSCRIPTS • A working conference of representatives of several state dental societies and state departments of education will be held in Chicago June 7 and 8. The conference, sponsored by the Division of Dental Health Education, will discuss methods by which state societies and education departments can work together on dental health education programs for school children. It is the first such conference sponsored by the Association. . . . Two companion publications, *Distribution of Dentists in the United States by State, Region, District and County* and *Facts About States for the Dentist Seeking a Location* have been published in their 1956 editions by the Bureau of Economic Research and Statistics. Single copies may be obtained from the Bureau on request. . . . June 30 is the deadline for receipt of applications for life membership. The House of Delegates will act on these applications during its meeting October 1-4 in Atlantic City, N. J.

Federal

HEALTH BILLS MOVE AHEAD; MILITARY PAY HIKES BEGIN

The House Committee on Interstate and Foreign Commerce May 10 approved a four million dollar authorization for a National Institute of Dental Research Building. The amount was one million dollars less than that voted earlier by the Senate. If the House concurs in its committee's action, a conference committee of both houses will iron out differences. Action on the measure, expected in May, would permit the inclusion of a starter appropriation in the budget for the Department of Health, Education and Welfare.

Also in May, a Senate appropriations subcommittee concluded hearings on the medical research budget of the U. S. Public Health Service. The full committee was expected to send the measure to the Senate floor before the month's end. The American Dental Association has recommended an increase of $3,055,000

over the proposed budget for dental research grants for dental schools and other nonfederal research centers. The House has approved an increase of $500,000.

Early action was expected also on a measure, S. 849, which provides funds on a matching basis for the construction of health research facilities by nonfederal agencies such as dental and medical schools. The measure, approved by the House Committee on Interstate and Foreign Commerce in May, was passed last year by the Senate. If the bill is approved by the House, a starter sum probably will be included in the HEW appropriations bill.

Military Medicine • President Eisenhower on April 30 signed into law the military medical career incentives bill. Pay hikes went into effect May 1. The law provides, in addition to the $100 special monthly bonus previously paid, an extra $50 a month after two years; $100 after six years and $150 after ten years. Time spent in dental school counts as military service for purposes of pay and promotion.

The military dependents health care bill at mid-month had been approved by the Senate and was in the hands of a conference committee.

O.A.S.I. • Also at mid-month, the Senate Finance Committee had tentatively approved the mandatory inclusion of self-employed dentists and lawyers in the Old Age and Survivors' Insurance Program. Physicians continue to be excluded.

H.R. 11,108 • Legislation has been introduced to tighten federal controls over barbiturates and amphetamines, but dentists and physicians, now licensed by state law to prescribe and administer these drugs, are not affected. The bill does provide for record keeping by manufacturers and others and lists categories of those authorized to handle the drugs. The bill is designed to make possible prosecution of persons handling barbiturates and amphetamines illegitimately.

Public Health

TWO MORE STUDIES SHOW FLUORIDATION EFFECTIVE

Results of two studies released in May provide additional evidence of the value of fluoridation. In Texas, Frank P. Bertram, director of dental health in the state department of health, reported that a ten year survey, recently completed in the community of Marshall, showed a 54 per cent reduction in dental decay in children between the ages of seven and 14 as compared with the decay rate of the same age group prior to the start of the program.

In Tennessee, a five year study in the town of Milan indicates a 57 per cent reduction among six year olds as compared with the caries rate of children in neighboring fluoride-deficient towns of Humboldt and Trenton.

A series of articles on fluoridation begins in the May issue of *National Parent-Teacher* magazine, official publication for all PTA members. The article, entitled "How Effective Is Fluoridation?" was written by H. Trendley Dean, secretary of the American Dental Association Council on Dental Research.

H. ROY GRAVELLE APPOINTED OKLAHOMA DENTAL DIRECTOR

H. Roy Gravelle of Norman, Okla., has been appointed director of the division of preventive dentistry of the Oklahoma State Department of Health, it was announced last month. Dr. Gravelle, who received his D.D.S. degree from Kansas City-Western Dental College, has been in private practice at Norman for the past 28 years. He is a past president and secretary of the Central District Dental Society and is a past president also of the Norman Rotary Club.

Dr. Gravelle succeeds Frank P. Bertram, who recently became dental director for the state of Texas.

Chicago fluoridation began May 1. Initially, the program covers 1,300,000 residents of Chicago's South Side and 24 suburbs. Fluoridation equipment will be operating for the remaining 2,800,000 Chicagoans and 27 additional suburbs about July 1. Drinking the first of the fluoridated water at valve turning ceremonies were (l. to r.) Maurice Hoeltgen, M.D., president of Chicago Medical Society; Mayor Richard J. Daley, and G. W. Solfronk, president of Chicago Dental Society.

National Defense

ARMY RESEARCH GROUP APPROVES 11 GRANTS

The Army Dental Research Advisory Committee has approved 11 research contract renewals and added one new contract. Meeting at the Armed Forces Institute of Pathology in Washington, D. C., March 7-9, the committee heard reports from researchers and evaluated the progress of each project. The new project authorized by the group is a histological study of the development of transplanted molar tooth buds in the rat. It will be carried on by Harry H. Shapiro at the College of Dental and Oral Surgery, Columbia University, New York. Continued projects are:

Dental adhesives, Finn Brudevold, Eastman Dental Dispensary, Rochester, N. Y.; research on dental plastics, F. R. Eirich and C. C. Overberger, Brooklyn College, Brooklyn, N. Y.; investigation of the surface changes of enamel in relation to caries, Erling Johansen, University of Rochester, Rochester, N. Y.; factors affecting bacterial populations in saliva, Frederick W. Kraus, University of Alabama, Birmingham; synthetic dental plaques prepared from strains of oral microorganisms, R. S. Manley, Tufts University School of Dental Medicine, Boston; relationship between the endocrine system and dental caries; J. C. Muhler and William G. Shafer, Indiana University School of Dentistry, Indianapolis; role of bacteria and their products in nonspecific gingivitis, Henry W. Scherp, University of Rochester; new designs and greater efficiency of dental tools at various speeds, Eugene W. Skinner, Northwestern University, Chicago; isolation and identification of oral actinomyces, John M. Slack, West Virginia University School of Medicine, Morgantown; enzymatic activity of the salivary glands, Leo Sreebny and Mrs. Julia Meyer, College of Dentistry, University of Illinois, Chicago, and clinical significance of the epithelial attachment, Helmut A. Zander, School of Dentistry, University of Minnesota, Minneapolis.

SUBSCRIPTS • Retirement points will be awarded to inactive Naval Reserve dental officers who attend civil defense courses given by the Federal Civil Defense Administration, according to a May 2 announcement of the Department of the Navy. . . . Col. Marion L. Mills has been appointed to head Walter Reed Army Medical Center's Central Dental

Laboratory. He succeeds Col. Lynn C. Dirksen. . . . A simplified set of dental requirements has been issued for entrance to Navy and Marine Corps Officer Candidate Training Programs. The requirements are published in the May 4 issue of the United States Navy *Medical News Letter*.

Dental Societies

DANIEL HOLLAND INSTALLED AS SOCIETY PRESIDENT

Daniel J. Holland of Brookline was installed as president of the Massachusetts Dental Society at its annual session May 6. The delegates, meeting in Boston, elected the following officers for the 1956-57 term: Maurice F. Grossman, president-elect; William F. Cleary, vice-president; Harold E. Tingley, secretary, and Edwin J. Morse, assistant secretary. Others elected were Glenn W. Lawrence, treasurer, Daniel J. McCarty, assistant treasurer, and Joseph A. Doherty, editor.

ELABORATE CONVENTION MARKS MICHIGAN CENTENNIAL

The nation's first state dental society to complete 100 years of continuous existence, the Michigan State Dental Association, celebrated its 100th birthday with an elaborate centennial convention April 15-19 at the Hotel Statler in Detroit. A registration of 4,153 made the convention the largest dental meeting ever held in Michigan.

Centennial awards "for outstanding contributions to this Association, to the Profession of Dentistry, to society," were presented to Wilber M. Brucker, of Washington, D. C., Secretary of the Army and the Association's long-time legal counsel; Thomas D. Dow, of Ada, Mich., the Association's historian; Harold Hillenbrand, of Chicago, secretary of the American Dental Association; Bernerd C. Kingsbury, of San Francisco, president of the American Dental Association; Charles S. Mott, of Flint, Mich., founder of the Mott Foundation, and Marcus L. Ward, of Ann Arbor, Mich., dean emeritus of the University of Michigan School of Dentistry, and a former A.D.A. president.

Centennial awards were presented also in memory of the late Senator James Couzens, founder of the Children's Fund

The Henrahan Memorial Award presented biennially by the Worcester (Mass.) District Dental Society for outstanding contributions to dentistry was given April 9 to David B. Ast, state director of the New York Bureau of Dental Health. Taking part in the presentation are (l. to r.): George Cowles Brown of the award committee, John C. Colleary, new chairman of the society, and Dr. Ast.

of Michigan, and the late Charles Henry Land, pioneer Michigan dentist, inventor and grandfather of Brig. Gen. Charles A. Lindbergh.

An honorary membership was presented to Donald W. Gullett of Toronto, secretary of the Canadian Dental Association. Governor G. Mennen Williams and Mrs. Williams were special guests at the Centennial Banquet.

Several exhibits of historical dental interest were on display at the convention. More than 75 scientific presentations on almost every phase of dentistry were featured.

The Association's Centennial attracted large-scale newspaper, radio and television publicity, especially in the Detroit and Michigan areas.

Among the many distinguished guests in attendance at the Centennial Convention were John W. Knutson of Washington, D. C., chief dental officer, USPHS; Magnus C. Hansen of Racine, Wis.; Lon W. Morrey of Chicago; William R. Alstadt of Little Rock, Ark.; Howard B. Higgins of Spartanburg, S. C.; Paul H. Jeserich of Ann Arbor, Mich.; Lewis W. Thom of Minneapolis; Thomas J. Hill of Cleveland; Francis J. Reichmann of Oklahoma City; Paul W. Zillmann of Buffalo, and Herbert B. Bain of Chicago. More than 35 other dental societies also sent representatives, and more than 40 other organizations had representatives in attendance.

R. W. Walmoth of Detroit completed his term as president of the Association at the end of the convention and R. A. Hart of Saginaw was installed as the new president. Other officers for 1956-57 elected by the Association were A. H. Lowther, Detroit, president-elect; J. P. Beukema, Grand Rapids, vice-president; Fred Wertheimer, Lansing, secretary; A. C. Sawicki, Detroit, treasurer, and F. D. Ostrander, Ann Arbor, editor.

Ozman J. Fusilier, of Clarkston, was

Officers of the Michigan State Dental Association talk with Bernard C. Kingsbury (center), president of the American Dental Association, at the recent centennial celebration. With Dr. Kingsbury are (l. to r.): R. A. Hart, incoming president; J. P. Beukema, vice-president; R. W. Walmoth, outgoing president, and A. H. Lowther, president-elect.

Plaques and a gavel in honor of the Michigan State Dental Association were presented to the society at its recent centennial celebration by Paul A. Eberling (left), president, St. Louis Dental Society; Kyrle W. Preis (second from left), president, Maryland State Dental Association; and Russell L. Moore (right), president, Tennessee State Dental Association. R. W. Walmoth (second from right), president of the Michigan society, holds the gavel presented by George W. Redpath, past president, Oregon State Dental Association. Plaques were presented also by two South American societies.

general chairman for the Centennial Convention and Charles H. Jamieson, of Detroit, was chairman of the Centennial Committee in charge of special events. More than 75 members of the Association served on committees that planned and conducted the Centennial Convention.

NEW OFFICERS ANNOUNCED FOR MARYLAND ASSOCIATION

C. E. Broadrup of Frederick, Md., was elected president of the Maryland State Dental Association at its annual meeting May 5-8 in Baltimore. Accompanying Dr. Broadrup into office are Howard B. Wood, vice-president; E. B. Nuttall, president-elect, and L. W. Bimestefer, editor. C. L. Inman was re-elected secretary and S. H. Bryant was re-elected treasurer.

BILL HOWARD TO SERVE AS TEXAS SOCIETY EXECUTIVE

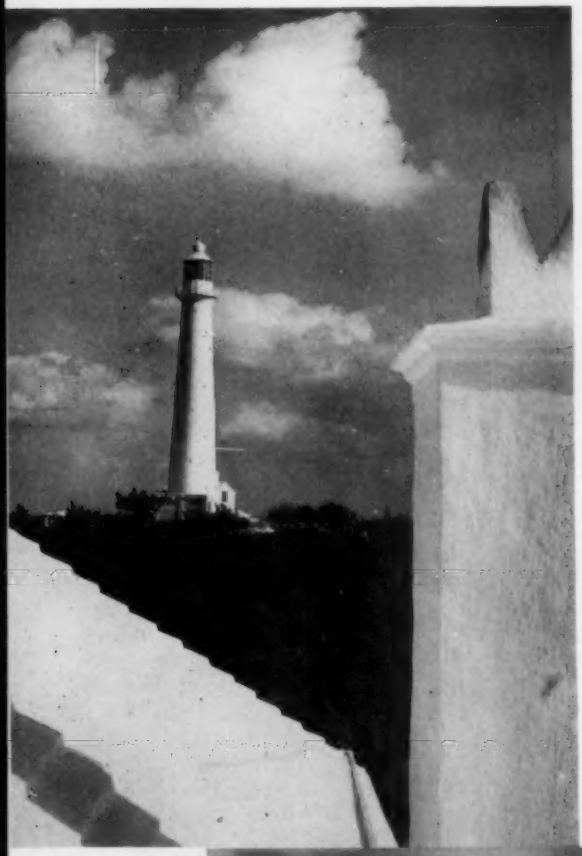
Mr. Bill Howard of Oklahoma City has been named executive secretary of the Texas Dental Society. Mr. Howard, whose appointment is effective June 1, is the first to hold this post with the Texas organization. He comes to his new position from a similar one with the Oklahoma State Dental Association.

A graduate of Oklahoma City University, Mr. Howard has a degree in English and journalism, with minors in speech, sociology and education. After graduation, he served as executive vice-president and secretary of the Oklahoma City Junior Chamber of Commerce. Later, he was employed as executive secretary of the Alumni Association at Oklahoma City University where he was also coordinator of the Foreign National Training Program.

DENTAL CORPORATION TO ADMINISTER WELFARE PROGRAM

A contract whereby the Washington State Dental Service Corporation will administer the state's dental health care program for welfare recipients has been approved by the State of Washington. Administrative details are now being worked out, according to Mr. Robert E. Paulsen, executive secretary of the Washington State Dental Association.

The state society had recommended last June that the welfare dental program be administered by the dental profession.



MID-ATLANTIC DENTAL CONFERENCE

A mid-Atlantic dental conference in Bermuda will follow the 1956 annual session of the American Dental Association. Dates for the meeting are October 7-10. Host organization is the Bermuda Dental Association. A famed vacation spot, Bermuda offers swimming, golf and other sports to the vacationist, as well as interesting landmarks for the sightseer. Framed by the white-washed roof and chimneys of a Bermuda farmhouse is Gibb's Hill lighthouse (left), highest point on the island. The entire western end of the colony can be seen from the observation platform. Below: Fort St. Catherine, built in 1619 to repel Spanish invaders seeking to wrest Bermuda from the English. Today, it serves purely an historical purpose, containing arms from many periods of warfare and a diorama of the settling of Bermuda.

Research

GORDON RESEARCH CONFERENCE CALLED FOR MID-JULY

Five speakers from abroad are among the essayists on the program of the 1956 Gordon Research Conference on the Chemistry, Structure and Physiology of Bones and Teeth. The Conference will be held July 16-20 at Kimball Union Academy in Meriden, N. H. The five are J. T. Irving, M.D., of the University of Witwatersrand, Johannesburg, South Africa; Jenifer Jowsey, Ph.D., of Oxford and Chicago Universities; Bengt Engfeldt, M.D., of the Karolinska Institute in Stockholm; Yngve Ericsson, L.D.S., Ph.D., of the Royal Dental College also of Stockholm, and Shirley Glasstone Hughes, L.D.S., of the University of Cambridge in England.

The Gordon Research Conference, held each year, brings together experts to discuss and evaluate the latest developments in their fields. In addition to the scheduled lectures, discussion groups are planned. Time is allotted also for informal discussion among the conference members.

Chairman of the conference is Reidar F. Sognnaes of the Harvard School of Dental Medicine. D. Harold Copp, M.D., is vice-chairman. Requests for attendance at the Conference should be addressed to W. George Parks, director, department of chemistry, University of Rhode Island, Kingston, R. I.

RECENT VISITORS TO NBS VIEW DENTAL RESEARCH

Visitors from widely separated parts of the world have recently visited the National Bureau of Standards in Washington, D. C., to see the dental research projects. Among them are: Allan A. W. Fooks, formerly of Guy's Hospital, London; W. Alan Lawson, professor of prosthetics, Eastman Dental Hospital, London; Chia-pin Wang, Provincial Industrial Research Institute, Taiwan; Tomozo Sakamura, chief of the dental department, Tokyo Metropolitan Police Hospital, Tokyo; George N. Davies, University of Otaga Dental School, Dunedin, New Zealand, and Minoru Horiuchi, 35th Station Hospital, Kyoto, Japan.

Other visitors are: Franz Graf of the University of Zurich, Switzerland; Teresamma Pinakatt, student from India; Nenita Salcedo, student from the Philippines; Bertil Holmboe, Royal Dental School, Malmo, Sweden; P. R. Sinha, College of Engineering and Technology, Calcutta, India; A. Ferguson Busby, Melbourne, Australia, and Raoul Henri Boitel, Zurich Dental School, Switzerland.

RESEARCH APPOINTMENTS OPEN AT GUGGENHEIM INSTITUTE

Openings for researchers at the Murry and Leonie Guggenheim Foundation Institute for Dental Research in New York have been announced. Staff appointments are made in the grades of research associate, research assistant and research Fellow. Information and application blanks may be obtained from the Institute at 339 E. 25 St., New York 10.

Dental Education

ENROLLMENT ENDS JUNE 15 FOR ILLINOIS PHONE COURSE

June 15 is the deadline for enrollment in the University of Illinois College of Dentistry's telephone extension program which begins next fall. The "Current Advances in Dentistry" series begins November 12 and will be broadcast the second Monday night of each month until March 11.

Interceptive orthodontics in general practice and high speed technics will be presented for the first time on the tele-

phone series. Other subjects are practice administration, clinical full denture prosthesis and oral lesions, diagnosis and treatment.

The faculty is composed of 24 educators and clinicians. Cost of the series is $300 for the dental society or study group. Additional information can be obtained from the postgraduate extension division of the school at 808 S. Wood St., Chicago 12.

NEBRASKA SCHOOL OFFERS CANCER SEMINARS

The University of Nebraska College of Dentistry in Lincoln offers a refresher course in neoplastic diseases. The course, designed for dentists, has been part of the school program for six years and has been attended by about a quarter of the state's dentists.

The Nebraska division of the American Cancer Society, the University's College of Medicine and the VA Hospital in Omaha have cooperated in providing funds and teachers for these cancer seminars.

TV USED FOR TEACHING IN ELEVEN DENTAL SCHOOLS

Eleven of the nation's 43 dental schools, one fourth of the total, now use closed circuit television for teaching purposes, an Association survey shows. The survey, made by the Film Library of the Bureau of Library and Indexing Service, was completed in mid-April.

It revealed that six schools have their own television equipment and that five others use facilities of the universities with which they are associated. Eleven additional schools plan to use TV in the future.

The six schools with their own closed circuit television equipment are the School of Dentistry, College of Physicians and Surgeons, in San Francisco; Chicago College of Dental Surgery, Loyola University; School of Dentistry, University of Detroit; School of Dentistry, University of Kansas City; School of Dentistry, University of Texas, in Houston, and School of Dentistry, Medical College of Virginia, in Richmond.

Schools using University TV facilities are the College of Dentistry, University of Illinois, in Chicago; College of Dentistry, State University of Iowa, in Iowa City; School of Dentistry, College of Medical Evangelists, Loma Linda, Calif.; School of Dentistry, University of North Carolina, Chapel Hill, and School of Dentistry, University of Washington, Seattle.

Particularly notable among TV users is the School of Dentistry, University of Texas, reports Miss Levin, Association film librarian. The Texas school teaches its first and second year dental students entirely through the medium of television. The school has six TV cameras.

KELLOGG GRANTS $31,460 FOR POSTGRADUATE STUDIES

The W. K. Kellogg Foundation has announced awards of $31,460 for postgraduate dental education projects. A grant of $10,500, to be used over four years, was given to the New Mexico State Dental Society, the New Mexico Department of Health and the University of New Mexico to establish education centers with annual programs for practicing dentists. A one year grant of $20,960 was made to the University of Illinois School of Dentistry for the further development and evaluation of television as a method for mass postgraduate education.

GRANT NORTHWESTERN $14,000 FOR CLEFT PALATE STUDY

The U. S. Public Health Service has awarded a $14,000 grant to the Northwestern University dental school for research in cleft lip and palate. George W.

Teuscher, dental school dean, said the grant goes to T. M. Graber, associate professor of orthodontics and director of research of the Cleft Lip and Palate Institute on Northwestern's Chicago campus.

The funds will be used over the next three years to study growth patterns of bones and muscles of the face and head in 100 children from birth to four years of age. The major part of the research will be done with the newly devised high-powered three dimensional x-ray unit adapted recently for the study of cleft palate. Dr. Graber designed the head-positioning device on the x-ray unit.

A second grant, $10,000, has been made by the research and development division of the Surgeon General's office, Department of the Army. It will go for the fifth year of a study of the design of dental burs being conducted under the direction of Eugene W. Skinner, professor of physics at the dental school.

Mr. Wilmoth Mack (left), secretary of the American Dental Trade Association, presents a check to Dean Maynard K. Hine for the Fund for Dental Education, Incorporated. The Fund was established by the American Association of Dental Schools at its March meeting in St. Louis.

NAME DIRECTORS OF FUND FOR DENTAL EDUCATION

The Fund for Dental Education, Incorporated, has been established by the American Association of Dental Schools. Its aim is the collection and dispersement of money to be used in improving dental education through such methods as sponsoring teaching seminars, exchange professorships, development of dental teacher training and curriculum studies.

Members of the first Board of Directors, appointed by the executive committee of the AADS, are: John E. Buhler, dean, School of Dentistry, Emory University; Maynard K. Hine, dean, Indiana University School of Dentistry; William R. Mann, University of Michigan School of Dentistry; Marion McCrea, Baltimore College of Dental Surgery, University of Maryland; Raymond J. Nagle, dean, College of Dentistry, New York University; Harold J. Noyes, dean, The Dental School, University of Oregon, and Wendell D. Postle, dean, College of Dentistry, Ohio State University.

Five contributions have already been received. Contributions, which are tax deductible, will be received from foundations, pharmaceutical and dental manufacturing companies, dental dealers and individuals.

SCHOOLS OFFER GRADUATE COURSES OF STUDY

Alabama • Effective speaking for professional people will be taught at the University of Alabama School of Dentistry in Birmingham Tuesday and Thursday evenings during June. This course and others in practice management will be offered again in the fall.

Louisville • Six months' courses in general anesthesia, beginning July 1 and September 1, are offered graduate dentists by the University of Louisville School of Dentistry in Louisville, Ky. Trainees will study at the University of Louisville Medical Center Hospitals, which include Louisville General, Childrens and Hazelwood Sanitarium and will have the same privileges as first year residents. The courses are under the direction of Robert Bergner, M.D., chief of anesthesia, and Richard Herd, chief of oral surgery.

North Carolina • Summer courses scheduled by the University of North Carolina School of Dentistry in Chapel Hill include clinical periodontics and oral pathology, June 11-16, and June 18-23; dentistry for children, July 9-13, July 16-23, July 23-27, and July 30 to Aug. 3.

Temple • A two weeks' course in advanced orthodontics, available to practicing orthodontists only, will be given at Temple University School of Dentistry in Philadelphia beginning January 20, 1957. It will be under the direction of Robert H. W. Strang.

Tufts • Tufts University School of Dental Medicine in Boston announces two postgraduate courses in occluso-rehabilitation. The first, September 21-26, is a lecture and seminar course. The second, a participation course, is scheduled every other week, Fridays and Saturdays, seven months beginning October 5.

2,386 APPLIED TO DENTAL HYGIENE SCHOOLS IN 1955

The nation's 33 dental hygiene schools received 2,386 applications for admission to first year classes in 1955, according to a survey by the American Dental Association's Council on Dental Education. The applications were made by 2,132 prospective students; 1,049 were selected, a ratio of 2.3 applications for each available space in the freshman classes.

POINT UP NEED FOR RESEARCH AT INDIANA WORKSHOP

A two day meeting designed to summarize current knowledge in preventive dentistry and to point up areas for further research and study was held March 1 and 2 at the Indiana University School of Dentistry in Indianapolis. In attendance were representatives of 41 dental schools, Eastman Dental Dispensary, University of Chicago, Michigan State University, as well as the dental divisions of the Armed Forces and the U. S. Public Health Service.

Short papers on dental caries, periodontal diseases, oral signs of systemic disease, prevention of malocclusion and prevention of disfigurement from cancer were followed by discussion among workshop participants.

STUDENTS PRESENT PROGRAM AT ANNUAL CLINIC DAY

Annual student clinic day was marked at several schools in March. Some 800 students, members of the Junior American Dental Associations at Temple University and the University of Pennsylvania, held a combined meeting at Temple's campus in Philadelphia. Students from the University of Alabama School of Dentistry joined with those from Emory University School of Dentistry at the Emory campus in Atlanta, Ga. Table clinics and lectures by students were features of both meetings.

Among those participating in the events at Temple were (picture one, facing page, l. to r., seated): Milton Rode, Junior Association faculty adviser at Temple; Charles Wilde, Jr., and Kurt Thoma, featured speakers, and Leonard Rosenthal, faculty adviser at Pennsylvania; (standing, l. to r.) are: Mr. John G. Butz and Mr. Donald Yanell, presidents of the two junior associations. Not shown is Charles H. Patton, American Dental Association's Third District Trustee, who was among the speakers on the morning program.

Participation awards went to students such as those in the center and bottom pictures who presented clinics and lectures at Emory. The annual banquet was presided over by Student American Dental Association president John Cudd. Guest speaker was J. Ben Robinson, dean of West Virginia University School of Dentistry. Other guests included Goodrich C. White, president of Emory University; John E. Buhler, dean of the dental school, and faculty advisers John R. Bartholomew and O. Donald Harvey. Elected SADA president for the coming year was Mac Huey; Rodgers Feese is the new vice-president.

BASE
IMPRESSION

Temporary
Acrylic Crown
Prosthesis

General

TELEVISION TO BE FEATURED AT F.D.I. ROME CONGRESS

An extensive television program will be a feature of the 1957 Rome Congress of the Fédération Dentaire Internationale, announces A. K. Ovadia, chairman of the cinema and television committee.

Some of the programs to be presented at the F.D.I.'s 12th International Dental Congress will be telecast throughout Italy. Others are scheduled for international transmission. In addition, table clinics and clinical demonstrations will be shown on closed circuit TV. Dentists with kinescopes suitable for use on the program are asked to contact Dr. Ovadia, Via Boezio 16, Rome, Italy.

GROUP HEALTH ASSOCIATION PLANS PREPAID DENTAL CARE

Group Health Association, Inc., of Washington, D. C., a consumer cooperative medical care group, has announced plans to establish a prepaid dental health care program. The program will be available to GHA members provided at least 1,000 participants are enrolled by the end of July. Previously, dental care was available on a fee basis only.

To be offered in the prepaid plan will be periodic examinations, prophylaxis and roentgenograms, prosthetic and periodontal treatment and minor oral surgery. Prospective participants must have their mouths in good condition to be eligible. Monthly premiums will be three dollars per covered individual.

W. G. SHAFER HEADS ACADEMY OF ORAL PATHOLOGY

W. G. Shafer of Indiana University was installed as president of the American Academy of Oral Pathology at its tenth annual meeting April 8 in Washington, D. C. R. W. Tiecke of Northwestern University Dental School was chosen president-elect.

Others elected were Charles A. Waldron of the Armed Forces Institute of Pathology, first vice-president; Henry H. Scofield of the Naval Dental School, second vice-president; Col. Joseph L. Bernier, Armed Forces Institute of Pathology, secretary-treasurer, and David F. Mitchell of Indiana University School of Dentistry, editor. Myron S. Aisenberg of Maryland was chosen a director of the American Board of Oral Pathology.

The Academy elected five Fellows, emeritus. They were: Kurt H. Thoma, Carl W. Waldron, Thomas J. Hill, J. Roy Blayney, Edgar D. Coolidge and William Bauer.

TO MARK HALF CENTURY OF PURE FOOD ACT THIS MONTH

This year marks the 50th anniversary of the Pure Food and Drugs Act, signed into law by President Theodore Roosevelt in 1906. To commemorate the event, the Association of Food and Drug Officials will hold a golden anniversary celebration in Washington, D. C., June 27. Co-sponsoring the event are government agencies such as the Department of Health, Education and Welfare and the Department of Agriculture, and representatives of the food, cosmetic and chemical industries. The day-long affair is open to the public.

The history of the Pure Food and Drugs Act began in the 1880s, when commercial processing and packaging took on major proportions in the food and drug field. Demands grew for the federal government to provide protection of the public health in this area. The first food and drug law was passed in 1906. In 1938 protection was extended. Today, the Food and Drug Administration employs

some 227 inspectors. Its protection extends to the proper labeling of drugs, the processing for safety of new drug applications, testing of the major antibiotics prior to their distribution and investigation of possible violations. Recently, the FDA issued a public warning against the so-called Hoxsey cancer treatment which Hoxsey claims cures cancer "without the use of surgery, x-ray or radium."

In June of last year, the Citizens Advisory Committee on the FDA recommended a three to fourfold increase in the FDA staff and a new office and laboratory building in Washington, D. C.

The 50th anniversary of the Pure Food and Drugs Act is being celebrated in June.

COLORADO GROUP TO CONDUCT PERIODONTOLOGY SEMINAR

The Colorado Dental Foundation will conduct a five day seminar in periodontology July 1-5 at the Fine Arts Center in Colorado Springs. A feature of the meeting will be a panel discussion. Panelists are Maynard K. Hine, dean of the Indiana University School of Dentistry; Charles H. M. Williams, head of the department of periodontics of the Faculty of Dentistry, University of Toronto, and Henry M. Goldman, chairman of the department of periodontology, University of Pennsylvania Graduate School of Medicine. Also on the panel are Harry Sicher, M.D., professor of anatomy and histology, Loyola (Chicago) University School of Dentistry, and Balint Orban, head of the department of periodontics at Loyola.

STRONG MEMORIAL OFFERS ORAL SURGERY INTERNSHIPS

Strong Memorial Hospital, Medical Center, University of Rochester, in Rochester, N. Y., announces internships and residencies in oral surgery for the year beginning July 1, 1956. Application forms may be obtained from the dental department of the hospital.

GEORGE A. BUCKLEY HONORED BY NEW YORK ALUMNI GROUP

George A. Buckley, professor and chairman of the department of denture prosthesis at New York University College of Dentistry, has received the 1956 University Alumni Meritorious Award. The award, given annually by the Alumni Federation, will be presented to Dr. Buckley and four other alumni at commencement exercises June 6.

Dr. Buckley is associate editor of the *New York University Journal of Dentistry*. He is a Fellow of the American College of Dentistry and a member of the American Denture Society.

EDUCATION GROUP SETS UP DENTAL HEALTH SECTION

A dental health section of the American Association for Health, Physical Education and Recreation was established at the organization's biannual meeting March 25-29 in Chicago. Miss Eileen Gamble, health teacher, Evanston High School, Evanston, Ill., was named section chairman.

One of the purposes in establishing the dental health section, Miss Gamble explained, was to provide dental hygienists an opportunity for becoming affiliated with a national educational group.

A distinguished alumni award was presented by the National Alumni Association of the Baltimore College of Dental Surgery, University of Maryland, to George M. Anderson (above, center) during the alumni's March meeting in Baltimore. Dr. Anderson, the first alumnus to be so honored, was cited for "constant devotion and outstanding contributions to the art and science of dentistry." Making the presentation are Kyrle W. Preis (left), president of the Maryland State Dental Association, and Lawrence Bimestefer, president of the Alumni Association. Below: The alumni also honored Miss Katherine Toomey, administrative secretary of the Baltimore College of Dental Surgery. A portrait is presented her by Maryland's governor, Theodore McKeldin.

Book Reviews

MODERN NUTRITION IN HEALTH AND DISEASE

By Michael G. Wohl, M.D., and Robert S. Goodhart, M.D. 1,062 pages with 80 illustrations and 127 tables. Index. Appendix. $18.50. Philadelphia, Lea & Febiger, 1955.

The object of this book as stated by the authors "is to present an authoritative and up-to-date discussion of every aspect of nutrition and provide the practicing physician and the student of medicine with a sound knowledge of both current advances in and the practical application of that science." The book does just that. However, interest in the book will not be limited to practicing physicians and students of medicine. It will be of great value to nutritionists, dentists, nurses, dietitians, home economists, public health workers and others who are concerned with the application of nutrition.

The volume is divided into three parts: normal nutrition, nutrition in disease and nutrition in periods of physiological stress. The approach throughout is from the clinical point of view.

The names of the 55 contributors read like a *Who's Who* in medicine, nutrition, physiology, biochemistry and other disciplines concerned with nutrition. The authors have integrated the materials of the contributors, so that the book represents cooperative effort covering all phases of nutrition.

The excellent summaries and bibliographies at the end of each chapter add to the value of the book.

Pearl S. Camstra

THE AMERICAN DRUG INDEX

By Charles O. Wilson, Ph.D., and Tony E. Jones, M.S. 576 pages. $5. Philadelphia, J. B. Lippincott Co., 1956.

This book consists of an alphabetical list of drugs by generic and trade names, with cross references. In the case of mixtures, the quantitative composition is given. Available dosage forms, such as ampule, vial or tablet, are stated together with the name of the manufacturer. Use and route of administration are specified in many instances.

The typography and paper are good. The material has obviously been arranged carefully and competently. The book is addressed to dentists as well as to physicians, pharmacists, nurses, students, teachers and sales personnel.

In order to estimate roughly whether the listing of dental drugs was sufficiently comprehensive, the reviewer looked up common dental product constituents by the first 35 names which entered his mind. Of the 35 names he found 25. One of the 25 was inadequately cross-indexed. The names not found were Unacaine, Supranol, Gardol, sodium lauroyl sarcosinate, Irium, Anacin, Fluoristan, stannous fluoride, GL-70, and Poloris poultices.

It is immediately admitted that two of the unlisted names, Fluoristan and stannous fluoride, refer to a drug only recently introduced on the market. The index still does not cover the dental field as well as its second edition probably will.

Despite limitations in its dental scope, the *American Drug Index* represents a worthy attempt to fill a definite need. It will be useful to those who are interested in the composition and nomenclature of currently available drug products. It should certainly be in the library of every dental school and dental editor.

Donald A. Wallace

ROOT CANAL THERAPY

By Louis I. Grossman, D.D.S. Fourth edition. 399 pages with 140 illustrations. Index. $7.50. Philadelphia, Lea & Febiger, 1955.

This textbook stresses many concepts basic to the successful practice of endodontics. The concept of focal infection is well explained, well documented and illustrated in the initial chapter.

The diseases of the dental pulp and adnexa are clearly presented, and the Churchill and Boyle photomicrographs aid in understanding the various pulp and periapical pathoses. The clinical diagnostic procedures are a standard complement to this subject, and a chapter on pulp capping and pulpotomy is included. The two and a half page chapter on mummification is retained from earlier editions for its historical interest, yet the chapters on the history of endodontics and on the treatment of deciduous teeth have been omitted.

The book fluctuates between profundity and superficiality. It is the reviewer's opinion that the author may have written in this way in

order to gear the book primarily to dental student needs. However, the author undoubtedly was not unaware of the deeper discussion occasionally required by the general practitioner and the endodontic specialist.

The author's methods of root resection, bleaching, instrumentation and his use of intradental antibiotics are well presented. His step-wise explanation of procedures in endodontics is easily followed.

This reviewer does not subscribe to the author's "sterile procedure" as it is essentially Listerian in principle. Nor does the reviewer subscribe to the too numerous restrictions imposed by "case selection," nor to the polyantibiotic theory. However, much of the total approach to endodontics is a matter of individual preference and Dr. Grossman rightfully is entitled to his own approach. The total procedure appears laborious when Dr. Grossman observes "if at the fourth appointment the culture is positive . . ." In the opinion of the reviewer, any condition necessitating more than two appointments for any tooth eventuates in "economic failure" for either the patient or the operator.

Despite the reviewer's point of view, this book is unreservedly recommended for all students of the subject. It contains much fundamental material of value to the dental student, practitioner and specialist.

Victor H. Dietz

PEDODONTICS FOR THE GENERAL PRACTITIONER

By Louis B. Kelsten. 396 pages with 269 illustrations. Index. Price not listed. Brooklyn, Dental Items of Interest Publishing Co., Inc., 1956.

This easy to read book consisting of 24 logically organized chapters with adequate references indicates much study by the author but does not present any new information.

A well authenticated short history of dentistry for children in the first chapter is interesting, but the next six chapters, devoted to the possible psychologic reactions of children in the dental office, and frequent references to children's reactions in several other chapters make it appear that all children have a fear complex. The many roentgenograms are indistinct and do not exhibit good roentgenological technics such as proper film placement, angulation and dark room procedures.

Information on operative dentistry for children is inadequate and does not present the newer concepts of cavity preparation and pulpal therapy for deciduous teeth. Restorations for permanent teeth are only mentioned. The last two chapters on prosthesis for children and interceptive orthodontics should be helpful to the general practitioner of dentistry.

Charles A. Sweet

BLOOD GROUP SUBSTANCES, THEIR CHEMISTRY AND IMMUNOCHEMISTRY

By Elvin A. Kabat. 330 pages with illustrations. Index. $8. New York, Academic Press, Inc., 1956.

This monograph analyzes current knowledge of the blood group substances from the standpoint of quantitative immunochemistry. The unique immunological specificity of the blood groups has been unraveled chemically by methods applied to the study of polysaccaride, protein and antibody structure. These tests make the blood group system a useful model for all biologic systems because of the extraordinary variety of materials which react with these substances.

The author presents the nature of blood group factors, the method for testing blood group bodies and antigens, the sources of preparation and purification of blood group substances. Recent studies of the relationship between constitution and disease point to a positive correlation between dental disorders and blood group substances. Similar correlations in this text will appeal to medical and dental students interested in the mechanisms of disease.

I. Newton Kugelmass

ATLAS OF ORAL PATHOLOGY

By Seiichi Matsumiya, Saburo Kondo, Shosaburo Takuma, Atsumi Suzuki and Yasukazu Osawa. Two volumes. 292 pages with 286 illustrations and 206 pages with 39 illustrations. $12. Tokyo, The Tokyo Dental College Press, 1955.

"In the study of dentistry," state the authors in their introduction, "students and clinicians alike have traditionally politely shunned oral pathology. . . . Instructors as well as authors of professional works in this field still overlook the use of visual object lessons. In other words, histopathological interpretations in the past have been presented in words only, making understanding extremely difficult. This has made the study seem unfriendly and has caused it to be unpopular. For this reason we have been working for the past ten years to facilitate the understanding and increase the popularity of the study of oral pathology by utiliz-

ing various forms of visual aids in our lectures. Therefore, the atlas portion of this publication has been stressed."

Among the fields of oral pathology covered are functional changes of the teeth, dental caries, traumatic injuries of the teeth and diseases of the pulp and periodontal tissues. The numerous micrographs were selected from the great number of sections prepared by the late Dr. Kanae Hanazawa. The micrographs are outstanding for their quality, clarity and variety, especially those in the higher magnifications. Each micrograph is accompanied by explanatory texts in Japanese and in English. The smaller second volume is entirely in Japanese, save for a bilingual index.

The atlas is well organized, the type is large, and the quality of paper and binding is outstanding. American dental students should find the atlas a valuable supplemental text in their study of oral pathology.

N. C. Hudson

A TEXTBOOK FOR DENTAL ASSISTANTS

By Irwin Robert Levy. Fourth edition. 293 pages with 237 illustrations. Index. $4.50. Philadelphia, Lea & Febiger, 1955.

Since the appearance of the third edition of this textbook, new developments in technics and materials have taken place, and this volume has been modified to bring it up-to-date. A dictionary containing 1,500 commonly used dental terms is appended to this latest edition so that the dental assistant may become better acquainted with the terminology used by the profession.

The book adequately covers in 11 chapters the duties of a dental assistant. Topics covered are chairside assisting, dental office management, dental anatomy, pathology and pharmacology, sterilization, dental roentgenology, oral surgery, periodontics, oral hygiene, pedodontics and orthodontics, models or casts, gold inlays and crowns. It is hoped that in the next edition the author will use the accepted nomenclature, substituting the suffix "dontics" for "dontia," (periodontics for periodontia, orthodontics for orthodontia).

Dentists vary in their ideas of dental assisting. They prefer to train their assistant in accordance with their own requirements. Therefore, although an assistant has acquired all the knowledge set forth in this text, it behooves her to be flexible enough to adjust herself when necessary.

This reviewer did find that portions of the text contain material extraneous to the needs of a dental assistant. Nevertheless, on the whole, the book is worthwhile. It should be valuable to the person contemplating dental assisting as a career, to the inexperienced dental assistant, as an aid in preparing for the certifying examination, and as a reference work for the trained dental assistant.

The illustrations are good, the type is readable, the paper, format and mechanical features leave nothing to be desired. Again the publishers are to be congratulated.

E. Alan Lieban

FORMULAIRE THERAPEUTIQUE ODONTOSTOMATOLOGIQUE (THERAPEUTIC FORMULARY FOR DENTISTS)

By R. Boissier, A. Bouland and P. Budin. Fifth edition. 478 pages. Index. 2,200 French francs. Paris, L'Expansion Scientifique Française, 1955.

This book is not intended to be of value to foreign (especially American) dentists, but is principally a guide for the prescription writing of French dentists. Many of the drugs listed under their French proprietary names are either not available or are known under different names in the United States. Therefore, this pharmaceutical compendium, which is the only book of its kind available in France, will not be useful in this country, even if it has wide acclaim in France and in the other French-speaking countries. The emphasis on therapeutics current in American dentistry requires a more reliable, modern and complete source of information.

The type is of large size, the paper is satisfactory and the binding adequate.

Paul H. Glucksman

DIE ÖRTLICHE BETÄUBUNG IN DER ZAHNHEILKUNDE (LOCAL ANESTHESIA IN DENTISTRY)

By Prof. Guido Fischer. Tenth edition. 316 pages with 210 illustrations. Index. DM. 18.50. Leipzig, Johann Ambrosius Barth, 1955.

This work, now in its tenth thoroughly revised edition, is the standard textbook in the German language on local anesthetics. It already has been translated into several foreign languages. Previous American editions, published by Lea & Febiger, Philadelphia, were excellently translated by Riethmüller and L. Grossman and are known to many American dentists. None of these American versions, however, include the chapters recently added or revised in this tenth edition.

This book can be regarded as one of the best historical accounts of local anesthesia. No method or technic has been overlooked. The work is divided into four parts: modern local anesthetic methods and their application, indications and dangers in the use of local anesthetics, anatomy of the oral cavity and technics previously used in obtaining local anesthesia.

Anyone interested in this special field will find the work of value either in the new German or in the previous American edition. The book contains excellent photographs, roentgenograms and drawings. Its paper is of fine quality, the print is large, clear and readable. Undoubtedly this work can be accepted as an authoritative contribution to German research on anesthesia and will be a valuable reference book for American dentists looking for material that they may apply in daily practice.

Paul H. Glucksman

DIE KLINISCHEN GRUNDLAGEN DER TOTALEN PROTHESE (CLINICAL FUNDAMENTALS OF COMPLETE DENTURES)

By Imre Kémeny. Translated from the Hungarian into German by Peter Adler. 168 pages with 88 illustrations. Index. DM. 12.10, Leipzig, Johann Ambrosius Barth, 1955.

This monograph is the eighteenth volume of a series of dental textbooks and deals with the construction and esthetics of lower and upper complete dentures. Even though the major emphasis is intended to be on methods used in Hungary and in other countries behind the Iron Curtain, it would seem that more detailed information on technics used in the Western European countries and in the United States should have been included. The two first sections, therefore, will be of relatively little interest to American dentists; the third part, however, is so excellently written and translated that a full knowledge of German will not be necessary to make this book a valuable reference work on esthetics.

The author, head of the prosthetics department of the Dental Institute at Budapest, is to be congratulated on his contribution to the Hungarian dental literature. The type and the illustrations are clear. This relatively small book is recommended to dentists and researchers interested in Hungarian methods in the construction of complete dentures.

Paul H. Glucksman

MIKROBIOLOGIE DER MUNDHÖHLE (MICROBIOLOGY OF THE ORAL CAVITY)

By Ulrich Berger. 266 pages with 83 illustrations. Index. DM. 27. Munich, Germany, Urban und Schwarzenberg, 1955.

In these overspecialized times of ours, it is pleasant to review a book whose author gives a synthesis of the vast biologic material collected in scientific laboratories. This comparatively small work is apparently intended not only for the specialist and the researcher but for the practicing dentist who wishes to keep in touch with the over-all problems in biologic and microbiologic research.

The author describes a great deal of his own work and experience at the bacteriological laboratory of the University of Hamburg. It is impossible to enumerate in this brief review the multitude of topics covered in this book, but certainly anyone interested in the microbiology of the oral cavity should read it. Excellent illustrations, glossy paper and an extensive index enhance the value of this most interesting book.

Paul H. Glucksman

PARTIAL DENTURES

By Merrill G. Swenson, D.D.S., and Louis G. Terkla, D.M.D. 421 pages with 423 illustrations. Index. $12. St. Louis, The C. V. Mosby Co., 1955.

This book is divided into two parts. Part I covers construction of removable partial dentures, and Part II deals with related factors and fundamentals of removable partial denture construction.

Part I describes and illustrates the procedure in detail, from patient attitude to finished denture.

Part II begins with a new, simplified and improved classification of removable partial dentures based on logic and reasoning. Included also are chapters on surveying, designing and planning; saddle outline and design; tooth preparation for clasping; partial denture clasps; impressions and bite rims; designs; fixed bridges versus removable partial dentures; temporary partial dentures, and correction of premature contacts in centric bite relation of natural teeth. There is an excellent glossary.

The book is easy to understand. It is printed on good quality paper with large readable type. The binding is inexpensive.

Monte G. Miska

Current Literature

THE METABOLISM OF THE ORAL FLORA

R. L. Hartles and Marie R. Wasdell. Brit. D.J. 99:334 Nov. 15, 1955.

This preliminary investigation concerns the relationship between the activity of the salivary sediment, which contains virtually all the microorganisms, and the containing fluid. Saliva contains an adjuvant in the absence of which the rate of breakdown of glucose is greatly retarded. This factor is heat stable, dialyzable, and is unlikely to be an inorganic ion unless it is a trace element with an insoluble oxide. The factor is present in saliva collected directly from the parotid gland.

About 10 ml. of saliva was collected from each of a number of individuals, centrifuged, and the solids washed and studied. It was concluded that there is a substance present in the saliva supernatant which is necessary if the salivary flora are to metabolize glucose at a maximum rate. Saliva was also collected from the parotid gland; this saliva was able to restore the glycolytic activity of the washed sediment to that of whole saliva.

Work is in progress to determine, if possible, the nature of the factor.

CYTODIAGNOSIS: ITS POSSIBILITIES AND LIMITATIONS (MÖGLICHKEITEN UND GRENZEN DER ZYTODIAGNOSTIK)

P. Hartmann. Deut. med. Wschr. 80:1839 Dec. 16, 1955.

In dental and medical practice, a tumor may often be detected and evaluated by cytodiagnosis, which is the study of cells either in an exudate or in a transudate. It is useful when other identifying methods fail. Although cytodiagnosis does not provide as certain a diagnosis as a thorough histologic examination, its results are, under certain circumstances, almost as reliable as those obtained by microscopy. After cytodiagnosis, many authors consider a thoracotomy as being indicated if the bronchial secretion repeatedly contains cells or tissues which indicate the possibility of carcinoma.

For tumors in the oral cavity, however, cytodiagnosis should be only one diagnostic method among many others; it may prove useful in such instances as basal cell carcinoma, epithelioma, mucinous carcinoma, carcinoma sarcomatodes and squamous carcinoma. In these diseases, early diagnosis is important.

INTEROSSEOUS WIRING OF FRACTURE OF THE MANDIBLE

Stephen Plumpton and B. S. Crawford. Brit. J. Plast. Surg. 8:165 July 1955.

The open reduction and interosseous wiring of mandibular fractures is indicated when closed reduction is considered to be difficult or impossible and when fixation provided by external appliances is unlikely to prove adequate. In the following six types of fractures, the method is of value:

1. Fracture with a posterior edentulous fragment which cannot be reduced owing to the interposition of muscle fibers between the fragments. Bony union in such instances can be ensured only by open operation, and interosseous wiring is performed in order to prevent redisplacement.

2. Fractures in edentulous patients which cannot be treated successfully by means of a Gunning splint or wired-in acrylic splints. When there is either gross displacement or instability of the fragments, interosseous wiring of the bone ends, supplemented by wired-in acrylic splints and intermaxillary fixation, is necessary to obviate malunion or nonunion and to simplify the subsequent construction of functional dentures.

3. Bilateral fractures of the body of the mandible with gross displacement, particularly if there are insufficient teeth on one or more of the fragments, or if the upper jaw is edentulous.

4. Fractures in the region of the symphysis which may result in medial displacement of both fragments with overriding of the bone ends, because of powerful mylohyoid muscles which also tilt each fragment inward. Interosseous wiring permits fixation of the fragments in normal occlusion, and immobilization is then completed by the screw connecting bar method.

5. Multiple fractures of the maxilla and mandible involving the tooth-bearing regions of both arches. Open reduction and wiring of the mandibular fractures, supplemented by some other form of immobilization, simplifies the reduction and fixation of the maxillary fragments in normal occlusion.

6. Fibrous union of a mandibular fracture, particularly in the edentulous patient. Interosseous wiring can be used provided the final loss of bone is minimal, so that the resultant malocclusion following approximation of the

fragments can be corrected when the dentures are made.

Preoperatively, the teeth are gently scaled and brushed, and obviously septic teeth are extracted. Impressions are taken for the construction of splints. The mouth is irrigated frequently with mouthwash, and penicillin injections (600,000 units daily) are begun on admission of the patient and are continued until all swelling has subsided.

Intraoral manipulations may be carried out before the start of the operation, but once the incision has been made the oral cavity is assiduously avoided until the incision is closed. General anesthesia, maintained by an intratracheal tube passed nasally, is recommended.

The accurate marking of the line of the fracture on the skin allows exposure of the fragments to be made through a very small incision. An incision of less than 3 cm. is made in a skin crease 1 cm. below the lower border of the mandible, with the center opposite the previously marked point. The skin of the neck is drawn up over the lower border of the mandible, and the incision is deepened directly down to the bone.

When the fracture has been exposed, each fragment is manipulated in turn in order to allow the lower border of the bone adjacent to the fracture line to be brought into the superficial part of the incision. The periosteum is stripped from both aspects of a small region of the lower border of each fragment close to the fracture line to allow the drilling of holes and insertion of the wire.

The author employs a Morse twist device (1.5 mm. diameter) in a mechanical bone drill and soft stainless steel wire (0.35 mm.) for the wiring. The drill holes are placed 0.5 cm. from the lower border of the mandible and (except in shearing fractures) an equal distance from the fracture line.

When the holes have been drilled, the wire is first passed through the hole in the main fragment. While an assistant holds the bone ends in the reduced position, each end of the wire is grasped with a pair of hemostats and traction exerted to tighten the wire intervening between the two holes; finally, both ends are twisted tightly to complete the figure-of-eight loop.

In those instances in which a single wire loop fails to provide sufficient rigidity, additional loops should be inserted. The soft tissues are closed over the fracture line with fine catgut, the skin is sutured without drainage, and a dressing is applied to the incision. The mouth is examined, and any gaping lacerations of the mucosa are sutured.

In edentulous patients the acrylic splints are now wired into place, and in all instances temporary intermaxillary fixation is established. Finally, a head bandage is applied to give support to the jaw and the dressing over the incision in the neck.

Postoperatively, irrigation of the mouth is carried out after all meals throughout the period of immobilization. The patient keeps the splints clean with a soft brush, and he is trained to manage the irrigation. Fixation is maintained for four weeks before the fracture is tested, and it is found that fractures treated by interosseous wiring are almost always firmly united by the end of this period.

A. F. Baranoff

GOLD CASTINGS BY THE HYGROSCOPIC TECHNIC: ADVANTAGES AND DISADVANTAGES

Clifford M. Sturdevant. J. N. Carolina D. Soc. 39:93 Jan. 1956.

Well-compensated castings can be produced consistently by the hygroscopic technic. The technic is not a complicated one and does not demand expensive additional equipment.

The following advantages are obtained from the hygroscopic technic: (1) The technic may be interrupted after the investing procedure. (2) The technic is a "low heat" one, thereby possessing the usually recognized advantages in low heat furnace treatment (800° to 900° F.). (3) The investment mold may be inserted directly into a furnace preheated to 800° F., thus eliminating the need for close attention during the furnace treatment. No cracked molds will ever occur. (4) The furnace temperature is not critical (800° to 900° F.). (5) The length of time of the furnace treatment of the investment is not critical, permitting the busy dentist or dental student to make the casting at his own convenience. (6) The time from wax pattern to casting is reasonably short (65 minutes with the small ring).

Several features of the hygroscopic technic indicate its application to group casting (as in the dental schools), namely: (1) only one large preheated furnace is required, and (2) congestion about the casting machine is unnecessary. One disadvantage of the hygroscopic technic should be noted. It is the possibility of release of stresses in the wax pattern during the water bath treatment. This disadvantage can be minimized by adherence to accepted principles in the manipulation of wax while forming the wax pattern.

Deaths

Knox, Frank D., Fayetteville, Ark.; School of Dentistry, Vanderbilt University, 1915; died December 4; aged 62.

Kramer, William S., Amherst, Mass.; School of Dental Medicine, Tufts University, 1955; died November 22; aged 31.

Larson, Francis D., Deep River, Conn.; School of Dentistry, University of Pennsylvania, 1904; died December 16; aged 72.

Leahy, David A., Cincinnati; Ohio College of Dental Surgery, University of Cincinnati, 1901; died November 25; aged 75.

Levin, Samuel A., Chicago; College of Dentistry, University of Illinois, 1907; died October 15; aged 79.

Libberton, Ralph E., Chicago; Dental School, Northwestern University, 1898; died January 6, 1956; aged 78.

Lindley, Harry W., Brady, Texas; Louisville College of Dentistry of Centre College, 1906; died December 1; aged 71.

Luff, Alonzo W., Fullerton, Calif.; Lincoln Dental College of Cotner University, 1912; died December 8; aged 66.

Macdonald, James A., Los Angeles; Chicago College of Dental Surgery, Loyola University, 1929; died November 28; aged 58.

Mach, Benjamin W., Chicago; Chicago College of Dental Surgery, Loyola University, 1918; died January 19, 1956; aged 57.

Michael, Claude, Dayton, Ohio; Ohio College of Dental Surgery, University of Cincinnati, 1899; died December 20; aged 87.

Milcoff, Solomon, Cleveland; College of Dentistry, Ohio State University, 1923; died October 21; aged 62.

Miller, Robert E., Sioux City, Iowa; College of Dentistry, University of Iowa, 1908; died November 24; aged 70.

Mitchell, Marks, Brighton, Mass.; School of Dental Medicine, Tufts University, 1914; died December 23; aged 62.

Moore, Joseph F., Philadelphia; Pennsylvania College of Dental Surgery, Philadelphia, 1897; died December 25; aged 80.

Moore, Russell, Vernon, Texas; died May 12, 1955.

Morrow, Henry B., Indianapolis; Indiana Dental College, 1921; died December 6; aged 64.

Moskalik, Alexander, Philadelphia; died October 3; aged 61.

Munro, James B., Morenci, Mich.; Department of Dental Surgery, Detroit College of Medicine, 1903; died September 23; aged 80.

Neelands, William J., Torrance, Calif.; College of Dental Surgery, University of Michigan, 1907; died November 2; aged 73.

Nelson, James J., Jr., Philadelphia; School of Dentistry, University of Pennsylvania, 1915; died November 29; aged 61.

Nickerson, Fred L., Westport Point, Mass.; Baltimore College of Dental Surgery, University of Maryland, 1915; died December 16; aged 71.

Oeder, Andrew H., New York; New York College of Dentistry, 1904; died December 6; aged 72.

Olson, Carlton P., New York; College of Dentistry, University of Minnesota, 1906; died September 11; aged 72.

Outten, Lawrence R., Selbyville, Del.; Baltimore College of Dental Surgery, University of Maryland, 1912; died November 20; aged 63.

Pancoast, Clyde M., Ashland, Neb.; Kansas City Dental College, Kansas City, 1897; died October 15; aged 85.

Pappas, Menelaus G., Hoboken, N. J.; School of Dentistry, University of Pittsburgh, 1940; died December 25.

Peters, Melvin E., North Vernon, Ind.; School of Dentistry, University of Louisville, 1906; died September 13; aged 80.

Phelps, Edgar B., Rock Island, Ill.; Dental School, Northwestern University, 1905; died December 5; aged 82.

Purcell, Lawrence A., Far Rockaway, N. Y.; New York College of Dentistry, 1912; died November 26; aged 72.

Reader, Joseph C., East St. Louis, Ill.; Dental Department, Marion-Sims College of Medicine, 1898; died December 2; aged 80.

Reid, Robert S., Chicago; Chicago College of Dental Surgery, Loyola University, 1924; died December 6; aged 65.

Riker, George B., Grand Rapids, Mich.; College of Dental Surgery, University of Michigan, 1920; died November 4; aged 57.

Ronna, Julius, Pasadena, Calif.; Dental School, Northwestern University, 1900; died December 7; aged 77.

Rosenthal, Max, Brooklyn; New York College of Dentistry, 1919; died December 16; aged 64.

Ross, John H., Summit Hill, Pa.; School of Dentistry, University of Pennsylvania, 1922; died December 1; aged 59.

Roys, Frank E., Darien, Conn.; School of Dentistry, University of Pennsylvania, 1889; died December 5; aged 90.

Saunders, David P., Macon, Ga.; Atlanta-Southern Dental College, 1940; died November 25; aged 51.

Savage, Austin A., Wallingford, Conn.; Chicago College of Dentistry, Loyola University, 1918; died November 20; aged 76.

Savage, William H., Clifton Forge, Va.; Baltimore College of Dental Surgery, 1888; died December 17; aged 88.

Saylor, James F., Hutchinson, Kan.; College of Dentistry, University of Illinois, 1944; died December 11; aged 33.

Scala, Thomas T., Jersey City; School of Dentistry, Georgetown University, 1921; died December 22; aged 59.

Schaffer, Delp S., Milwaukee; Dental School, Marquette University, 1933; died December 4; aged 46.

Schoff, Peter F., Dayton, Ohio; School of Dentistry, University of Pennsylvania, 1892; died November 26; aged 89.

Schwartzman, Samuel, Flushing, N. Y.; Philadelphia Dental College, 1903; died November 26; aged 73.

Scott, John J., Avon, N. Y.; College of Dental Surgery, University of Michigan, 1901; died December 11; aged 79.

Sharpe, Imly, Atlantic City, N. J.; Medico-Chirurgical College of Philadelphia, 1902; died December 12; aged 80.

Sheafer, George M., Oak Park, Ill.; Dental School, Northwestern University, 1924; died August 3; aged 60.

Sheridan, Lee T., Jacksonville, Fla.; Atlanta-Southern Dental College, 1924; died December 13; aged 58.

Slocomb, Edward M., Detroit; died November 9; aged 77.

Soden, Frank B., Hamilton, N. Y.; New York College of Dentistry, 1897; died December 3; aged 84.

Solomon, David, Philadelphia; School of Dentistry, Temple University, 1928; died December 24; aged 50.

Spann, Lyndon P., Quincy, Ill.; School of Dentistry, University of Denver, 1904; died October 21; aged 74.

Spencer, Walter A., Carbondale, Pa.; School of Dentistry, University of Pennsylvania, 1890; died December 25; aged 88.

Stanton, Rufus H., Galveston, Texas; Dental Department, Meharry Medical College, 1915; died November 24; aged 70.

Stewart, Alva B., Los Angeles; College of Dentistry, University of Tennessee, 1905; died January 14, 1956; aged 74.

Stewart, William A., Kansas City, Mo.; Western Dental College, Kansas City, 1903; died December 2; aged 82.

Stover, John H., Oklahoma City; Dental School, Marquette University, 1918; died November 14; aged 76.

Sturtz, Herman, Melbourne, Fla.; Chicago College of Dental Surgery, Loyola University, 1900; died November 26; aged 81.

Suffern, Edward R., Suffern, N. Y.; School of Dentistry, University of Pennsylvania, 1903; died November 26; aged 78.

Swain, Earl R., Kansas City, Mo.; Kansas City Dental College, 1916; died December 9; aged 64.

Swift, Donald A., Farmington, Mich.; School of Dentistry, University of Detroit, 1935; died November 20; aged 48.

Tenney, William H., Toledo, Ohio; Ohio College of Dental Surgery, University of Cincinnati, 1892; died December 10; aged 85.

Thompson, Ulysses G., Philadelphia; College of Dentistry, Howard University, 1927; died December 16; aged 58.

Trueman, James A., Orlando, Fla.; College of Dentistry, University of Tennessee, 1954; died December 11; aged 32.

Tuma, Vladimir A., New York; New York College of Dentistry, 1923; died December 13; aged 59.

Unfug, Adolph A., Walsenburg, Colo.; School of Dentistry, University of Denver, 1917; died December 13; aged 62.

Updegraff, John W., Ligonier, Pa.; School of Dentistry, University of Pennsylvania, 1905; died September 1; aged 76.

Vig, Richard, McIntosh, Minn.; College of Dentistry, University of Minnesota, 1911; died November 23; aged 68.

Von Tick, Rudolph J., Pleasant Ridge, Mich.; Department of Dental Surgery, Detroit College of Medicine, 1901; died December 6; aged 83.

Walters, Harry M., Lancaster, Pa.; Medico-Chirurgical College of Philadelphia, 1907; died December 11; aged 69.

Warburton, Maynard B., Clarks Summit, Pa.; School of Dentistry, University of Pennsylvania, 1909; died October 30; aged 76.

Watt, John E., Milwaukee; Dental School, Marquette University, 1919; died December 16; aged 66.

Wechsler, Julius, Brooklyn; New York College of Dentistry, 1925; died October 29; aged 52.

Welch, H. L., Gassaway, W. Va.; Ohio College of Dental Surgery, University of Cincinnati, 1920; died December 16; aged 58.

Whitehead, John C., Daytona Beach, Fla.; School of Dentistry, Georgetown University, 1912; died December 18; aged 81.

Wildes, Robert P., Santa Barbara, Calif.; School of Dental Medicine, Tufts University, 1917; died November 7; aged 67.

Williams, Thomas H., Chickasha, Okla.; died December 9; aged 86.

Wood, Samuel O., Lakewood, Ohio; died December 13; aged 82.

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THE JOURNAL OF THE AMERICAN DENTAL ASSOCIATION
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All expressions of opinion and all statements of supposed fact are published on the authority of the writer over whose signature they appear and are not to be regarded as expressing the views of the American Dental Association, unless such statements or opinions have been adopted by the Association. Articles are accepted with the understanding that they have not been published previously and that they are submitted solely to The Journal. The Journal of the American Dental Association is indexed in the Index to Dental Literature, in the Current List of Medical Literature and, in part, in the Quarterly Cumulative Index Medicus, Biological Abstracts and Chemical Abstracts.

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Announcements

MEETINGS OF THE AMERICAN DENTAL ASSOCIATION

Ninety-Seventh Annual Session	Oct. 1-4, 1956	Atlantic City, N. J.
Ninety-Eighth Annual Session	Nov. 4-7, 1957	Miami, Fla.
Ninety-Ninth Annual Session	Nov. 10-13, 1958	Dallas, Texas
One-Hundredth Annual Session	Sept. 21-24, 1959	New York

MEETINGS OF CONSTITUENT SOCIETIES

State	Date	Place	Secretary	Address
Alabama	Apr. 16-18, 1957	Birmingham	F. A. Finney, Jr.	1045 Forrest Ave., Gadsden
Alaska	Aug. 15-18	Fairbanks	J. L. Irby	1010 Noble St., Fairbanks
Arizona			R. W. Christensen	17 E. Weldon Ave., Phoenix
Arkansas	Apr. 7-10, 1957	Little Rock	D. M. Hamm	Box 89, Clarksville
California	Apr. 15-17, 1957	San Francisco	W. J. Healy	450 Sutter St., San Francisco
S. California	Apr. 7-10, 1957	Los Angeles	J. P. Bowers	903 Crenshaw Blvd., Los Angeles 19
Colorado	Oct. 21-24	Colorado Springs	W. R. Humphrey	Republic Bldg., Denver
Connecticut			E. S. Arnold	37 Linnard Rd., W. Hartford
Delaware	Jan. 1957		J. C. Gantt	1102 N. Jackson, Wilmington
District of Columbia	Mar. 10-13, 1957	Washington	J. F. Keaveny	1029 Vermont Ave., N.W., Washington
Florida			W. A. Buhner	167 Broadway, Daytona Beach
Georgia	Oct. 21-24	Savannah	J. W. Yarbrough	Southern United Bldg., Macon
Hawaii	Sept. 10-15	Maui Island	J. H. Dawe	810 N. Vineyard St., Honolulu
Idaho	Sept. 5-7	Sun Valley	D. E. Sonius	125 Fourth Ave., N., Twin Falls
Illinois			P. W. Clopper	Jefferson Bldg., Peoria
Indiana			D. C. Barnhill	Bankers Trust Bldg., Indianapolis
Iowa	May 5-8, 1957	Des Moines	H. I. Wilson	Insurance Exchange Bldg., Des Moines
Kansas			F. A. Richmond	Brotherhood Bldg., Kansas City
Kentucky	Apr. 1-3, 1957	Louisville	A. B. Coxwell, Jr.	1976 Douglass Blvd., Louisville
Louisiana	Apr. 24-27, 1957	Lake Charles	J. S. Bernhard	2515 Line Ave., Shreveport
Maine	June 21-23	Rockland	S. M. Gower	Box 27, Skowhegan
Maryland			C. L. Inman, Jr.	Medical Arts Bldg., Baltimore
Massachusetts			H. E. Tingley	12 Bay State Rd., Boston
Michigan			F. Wertheimer	Michigan Dept. of Health, Lansing
Minnesota	Apr. 1-3 1957	Minneapolis	C. V. E. Cassel	Hamm Bldg., St. Paul
Mississippi	June 10-13	Biloxi	B. A. Cohen	Plaza Bldg., Jackson
Missouri			E. D. Suggett	Merchants Bank Bldg., Jefferson City
Montana			E. G. Vedova	Box 311, Roundup
Nebraska	Apr. 29-May 1, 1957	Lincoln	F. A. Pierson	Federal Securities Bldg., Lincoln
Nevada			O. M. Seifert	306 Humboldt St., Reno
New Hampshire	June 24-27	Rye Beach	F. E. Williams	814 Elm St., Manchester
New Jersey	May 12-15, 1957		J. G. Carr	407 Cooper St., Camden
New Mexico			J. S. Eilar	Medical Arts Sq., N.E., Albuquerque
New York			C. A. Wilkie	1 Hanson Place, Brooklyn
North Carolina			R. D. Coffey	Box 270, Morganton
North Dakota			J. H. Pfister	419½ Dakota Ave., Wahpeton
Ohio	Oct. 28-31	Columbus	E. G. Jones	185 E. State St., Columbus
Oklahoma	Apr. 14-17, 1957	Tulsa	S. A. Russman	1219 Classen Dr., Oklahoma City
Oregon	Mar. 4-6, 1957	Portland	T. D. Holder	Selling Bldg., Portland
Panama Canal Zone			A. L. Robertson	5700 USAF Dispensary, Albrook Air Force Base
Pennsylvania			M. D. Zimmerman	217 State St., Harrisburg
Puerto Rico	Nov. 25		R. Carrasquillo	P.O. Box 214, De Diego #3, Rio Piedras

State	Date	Place	Secretary	Address
Rhode Island			J. S. Allen	Union Trust Bldg., Providence
South Carolina			J. R. Owings	7 Medical Court, Greenville
South Dakota			R. E. Decker	Parker
Tennessee			A. M. Ballentine	Pulaski
Texas			W. Ogle	3707 Gaston Ave., Dallas
Utah			R. C. Dalgleish	State Capitol Bldg., Salt Lake City
Vermont			E. H. Van Santvoord	22 Washington St., Rutland
Virginia			W. T. McAfee	Colonial National Bank Bldg., Roanoke
Washington	Mar. 28-30, 1957		J. M. Deines	227 Broadway, N., Seattle
West Virginia	July 22-25	White Sulphur Springs	G. N. Casto, Jr.	710½ Lee St., Charleston
Wisconsin	Apr. 29-May 1, 1957	Milwaukee	A. E. Kopp	Wells Bldg., Milwaukee
Wyoming	June 14-16	Cody	T. J. Drew	State Office Bldg., Cheyenne

MEETINGS OF STATE BOARDS OF DENTAL EXAMINERS

State	Date	Place	Secretary	Address
Alabama	June 24-29* June 25, 26†	Birmingham	W. L. McCarty	Professional Center, Montgomery
Alaska	Aug. 7-10* Aug. 7, 8†	Fairbanks	R. H. Williams	Box 2122, Juneau
Arizona	June 18-22* June 20†	Florence	W. G. Biddulph	1502 W. Osborn Rd., Phoenix
Arkansas	June 18-22	Little Rock	W. T. Jones	107 E. Shelton, Monticello
California	June 18 July 23	Los Angeles San Francisco	T. G. Atwood	450 Sutter St., San Francisco
Colorado	June 25-29	Denver	R. F. Gilmore	Republic Bldg., Denver
Connecticut	June 17-23* June 17-23†	New York Bridgeport	C. G. Brooks	302 State St., New London
Delaware	June 25*† June 26-28*†	Philadelphia Wilmington	P. K. Musselman	143 W. Main St., Newark
District of Columbia	June 4-7, 9	Washington	W. T. Birthright	1835 Eye St., N.W., Washington
Florida	July 9-19*†	Jacksonville	R. P. Taylor, Jr.	P. O. Box 2913, Jacksonville
Georgia			P. M. McNeil	First National Bank Bldg., Rome
Hawaii	Aug. 30-Sept. 3‡		H. L. Houvener	Dillingham Bldg., Honolulu
Idaho	June 25	Boise	A. G. DeWinter	Sun Bldg., Boise
Illinois	June 26-29‡ Nov. 27-30‡		W. A. McKee	Wood Bldg., Benton
Indiana	June 12-15*†	Indianapolis	C. A. Frech	Gary National Bank Bldg. Gary
Iowa	May 28-June 1*†	Iowa City	P. A. Hahn	Farmers & Merchants Bank Bldg., Burlington
Kansas	June 11-14‡		G. L. Teall	Box 71, Hiawatha
Kentucky	June 4-7*†	Louisville	J. J. Kelly	102 W. Madison St., Franklin
Louisiana	June 3-8	New Orleans	R. C. Steib	Maison Blanche Bldg., New Orleans
Maine	June 18-20	Boston	A. S. Appleby	Box 260, Skowhegan
Maryland	June 11-13‡		H. Levin	3429 Park Heights Ave., Baltimore
Massachusetts	June 11, 12* June 14, 15*†	Boston	J. T. Glennon	323 Main St., Woburn
Michigan	June 10-16	Ann Arbor	J. L. Champagne	3714 W. McNichols Rd., Detroit
Minnesota	June 11-15‡		M. G. Walls	615 Montcalm Place, St. Paul
Mississippi	June 19-21‡		J. C. Boswell	Lamar Life Bldg., Jackson
Missouri			R. R. Rhoades	Central Trust Bldg., Jefferson City
Montana			R. O. Betzner	303 Power Block, Helena
Nebraska	June 8-14	Lincoln	H. E. Weber	Federal Securities Bldg., Lincoln
Nevada	June 25	Reno	R. Whitehead	Masonic Temple, Reno
New Hampshire	June 21, 22* June 21†	Boston	S. G. Markos	8 Renaud Ave., Dover
New Jersey	June 25-28 June 29, 30	Philadelphia Trenton	W. A. Wilson	150 E. State St., Trenton
New Mexico	June 18-23	Santa Fe	J. J. Clarke, Sr.	Artesia
New York	June 21, 22, 26-29*‡ June 21, 22, 26, 27†‡ Oct. 10, 11, 16-19*‡ Oct. 10, 16, 17†‡		D. W. Beier	23 S. Pearl St., Albany 7

State	Date	Place	Secretary	Address
North Carolina	June 25	Chapel Hill	J. H. Guion	Doctors Bldg., Charlotte 7
North Dakota	July 9-13	Fargo	T. M. Flath	Williston
Ohio	June 14-16, 18-20	Columbus	H. B. Smith	322 E. State St., Columbus
Oklahoma	June 18-20*†	Oklahoma City	W. E. Cole	First National Bldg., Oklahoma City
Oregon	June 4-7*†	Portland	F. L. Utter	Pioneer Trust Bldg., Salem
Pennsylvania	June 18-23*†	Philadelphia Pittsburgh	A. M. Stinson	Dept. of Public Instruction, Box 911, Harrisburg
Puerto Rico			J. Mercado C.	Box 3717, Santurce
Rhode Island			F. M. Hackett	267 Academy Ave., Providence
South Carolina	June 21-23	Columbia	J. L. Gunter	1226 Pickens St., Columbia
South Dakota	June 17-20	Sioux Falls	H. T. Aker	Canton
Tennessee	June 11-15‡		C. R. Aita	Bennie Dillon Bldg., Nashville
Texas	June 10-16* June 14-16†	Houston	R. T. Weber	Capital National Bank Bldg., Austin
Utah			G. W. Vogel	Eccles Bldg., Ogden
Vermont	June 25-27*†	Burlington	P. M. Fitch	Newport
Virginia	June 4-9* June 4, 5†	Richmond	J. M. Hughes	Medical Arts Bldg., Richmond
Washington	June 18-21	Seattle	M. L. Mower	National Bank of Commerce Bldg., Olympia
West Virginia	June 25-27*†	West Liberty	J. B. Davis	Goff Bldg., Clarksburg
Wisconsin	June 4-8*†	Milwaukee	S. F. Donovan	Tomah
Wyoming			W. A. Hocker	O & S Bldg., Casper

Most states require applications to be in 30 days prior to examination date.
*Dental examination. †Dental hygiene examination. ‡Write to secretary of dental examining board for information on locations of examinations. §Approximate dates—verify with state dental examining board.

MEETINGS OF OTHER ORGANIZATIONS

State	Date	Place	Secy. or Chm.	Address
American Academy of Dental Medicine	June 21-24	Detroit	G. J. Witkin Secy.	45 S. Broadway, Yonkers, N.Y.
American Academy of Oral Roentgenology	Sept. 28, 29	Atlantic City, N. J.	H. M. Berry, Jr. Secy.	4001 Spruce St., Philadelphia 4
American Academy of Pedodontics	June 11-15	Milwaukee	E. C. Schildwachter Secy.	6831 Seville Ave., Huntington Park, Calif.
American Academy of Periodontology	Sept. 27-29	Atlantic City, N. J.	C. E. Chamberlain Secy.	115 North St., Peoria, Ill.
American Association of Dental Examiners	Sept. 28, 29	Atlantic City, N. J.	C. A. Bumstead Secy.	Stuart Bldg., Lincoln, Neb.
American Board of Dental Public Health	Sept. 27, 28	Atlantic City, N. J.	P. E. Blackerby, Jr. Secy.	250 Champion St., Battle Creek, Mich.
American College of Dentists	Sept. 30	Atlantic City, N. J.	O. W. Brandhorst Secy.	4221 Lindell Blvd., St. Louis 8
American Dental Assistants Association	Oct. 1-4	Atlantic City, N. J.	M. L. Martin Exec. Secy.	410 First National Bank Bldg., La Porte, Ind.
American Dental Society of Europe	July 10-13	London, England	J. P. Molony Hon. Secy.	110 Harley St., London W.1, England
American Denture Society	Sept. 28, 29	Atlantic City, N. J.	V. L. Steffel Secy.	College of Dentistry, Ohio State University, Columbus
American Institute of Dental Medicine	Nov. 4-8	Palm Springs, Calif.	M. Lewis Exec. Secy.	2240 Channing Way, Berkeley 4, Calif.
American Public Health Association, Inc.	Nov. 12-16	Atlantic City, N. J.	R. M. Atwater Exec. Secy.	1790 Broadway, New York
American Society of Dentistry for Children	Sept. 28-30	Atlantic City, N. J.	H. C. Hester Pub. Chm.	Arcade Bldg., Glen Ridge, N. J.
American Society of Oral Surgeons	Sept. 25-28	New York	R. F. Whalen Exec. Secy.	M.C.V. Box 876, Richmond, Va.
Association of American Women Dentists	Oct. 1	Atlantic City, N. J.	N. E. McDonald Secy.	151 Engle St., Englewood, N. J.
British Dental Association	June 25-29	Brighton, Sussex, England	H. P. Buchanan Secy.	13 Hill St., Berkeley Sq., London, England
Canadian Dental Association	June 3-6	Banff, Canada	R. L. Rasmussen	Greyhound Bldg., Calgary, Alberta, Canada
Chicago Dental Society	Feb. 3-6 1957	Chicago	K. S. Richardson Exec. Secy.	30 N. Michigan Ave., Chicago

State	Date	Place	Secy. or Chm.	Address
Council on Dental Education, Dental Aptitude Tests	Oct. 5, 6		S. Peterson Secy.	222 E. Superior St., Chicago
Danish Dental Association	Sept. 27	Copenhagen, Denmark	F. Orth	Østerbrogade 4, Copenhagen, Denmark
German Society for Dentofacial and Oral Surgery	July 26-28	Hamburg, Germany	K. Schuchardt	Johnsallee 3, Hamburg 13, Germany
Greater New York Dental Meeting	Dec. 3-7	New York	R. E. Morse Gen. Chm.	Hotel Statler, New York 1
Maritime Dental Association Convention	June 27-29	Halifax, Nova Scotia, Canada	E. F. Dexter Secy.	5 Dutch Village Rd., Halifax, Nova Scotia, Canada
Medical Library Association	June 18-22	Los Angeles	A. N. Brandon Chm.	College of Medical Evangelists, P. O. Box 278, Loma Linda, Calif.
Mid-Continent Dental Congress and Centennial Meeting of the St. Louis Dental Society	Nov. 25-28	St. Louis	J. E. Brophy Exec. Secy.	8013 Maryland Ave., St. Louis 5
National Board of Dental Examiners	Dec. 3, 4		G. J. Casey Secy.	222 E. Superior St., Chicago
New England Dental Society	Oct. 24, 25	Boston	F. L. Finley, Jr. Secy.	43 Farmington Ave., Hartford, Conn.
New Orleans Dental Conference	Nov. 11-14	New Orleans	B. G. Frick, Jr. Secy.	Maison Blanche Bldg., New Orleans 16
Northeastern Dental Society	June 3-6	Swampscott, Mass.	M. J. Frasca Secy.	153 Cabot St., Beverly, Mass.
Peruana Society of Dental and Maxillofacial Prosthesis, First National Congress	Sept. 19-22	Lima, Peru	J. Begazo S. Secy.	Pasaje Olaya 156, No. 38, Lima, Peru
Scandinavian Congress	July 4-7	Stockholm, Sweden	W. Waldvik	Kungsgatan 18, Stockholm, Sweden
Seventh Annual Berkshire Conference	June 17-21	Lenox, Mass.	I. Glickman Dir.	Tufts University, School of Dental Medicine, 136 Harrison Ave., Boston
Southern Society of Orthodontists	Aug. 19-22	White Sulphur Springs, W.Va.	M. D. Edwards Secy.	132 Adams Ave., Montgomery, Ala.
Southwestern Society of Orthodontists	Oct. 7-10	Houston, Texas	H. S. Born Secy.	908 S. Johnstone Ave., Bartlesville, Okla.
Thirteenth German Dental Meeting	Aug. 20-26	Munich, Germany	F. H. Witt	Universitaetsstrasse 73, Cologne-Lindenthal, Germany
Thirty-first Italian Congress of Stomatology	Sept. 24-29	Florence, Italy	M. Bergamini	Via S. Gallo 25, Florence, Italy
Twelfth International Dental Congress	Sept. 7-14	Rome, Italy	P. Lalli Secy. Gen.	Via Boezio 16, Rome, Italy

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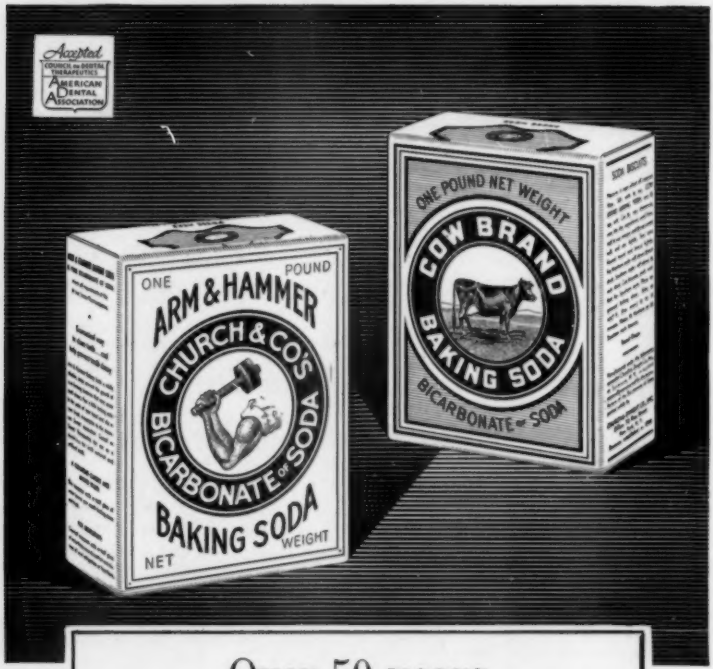

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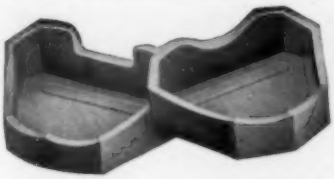

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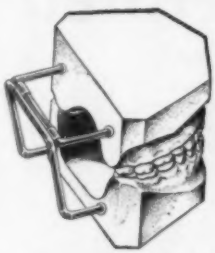

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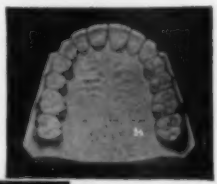

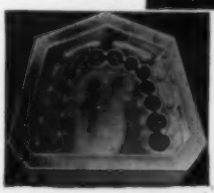

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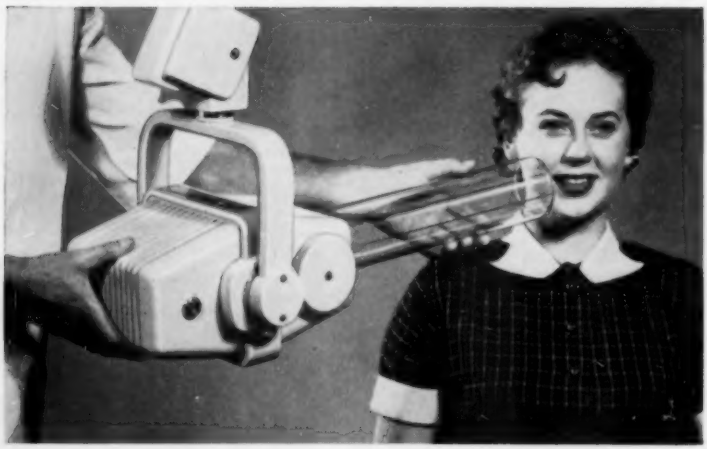

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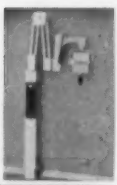

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Gurdjian, E. S., and Webster, J. E., Amer. J. of Surgery, 63:236, 1944.

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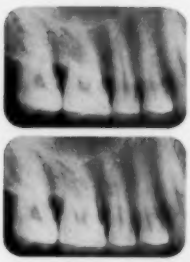
No. 3

HOW TO SAVE TIME IN AN EMERGENCY DIAGNOSIS



ABOVE: NORMAL EXPOSURE AND DEVELOPMENT TIME.
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HOW TO AVOID POOR RADIOGRAPHS WITH PROPER PROCESSING

Not much diagnostic value in the radiograph above! Processing time and temperature were exact, exposure correct . . . but improper darkroom technique ruined an otherwise good dental radiograph.

To avoid disappointing results, you should closely follow several routine procedures when processing dental radiographs. Film should be carefully removed from the packet —handled by the edges only, to prevent finger marks on the emulsion. All Du Pont Dental X-ray Films come in the exclusive "Pull-A-Tab" Packet to speed and simplify this operation.

Since wet film has a tendency to stick to a surface it touches, be sure films are attached to a hanger so they don't touch one another or the sides of the tank during processing. Contact with another film during development caused the large undeveloped area in the radiograph shown above.

And remember to agitate the films—especially when they're first immersed in solutions —to dislodge any air bubbles which may stick to the emulsion during processing.

A few extra minutes spent in the darkroom will pay off with radiographs of better diagnostic quality.

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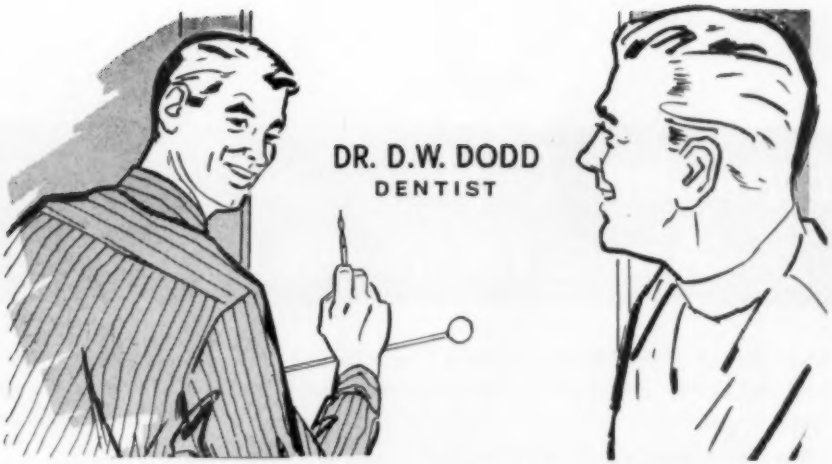

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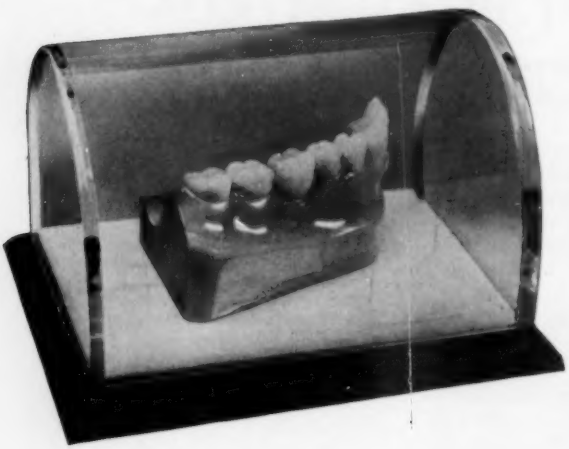

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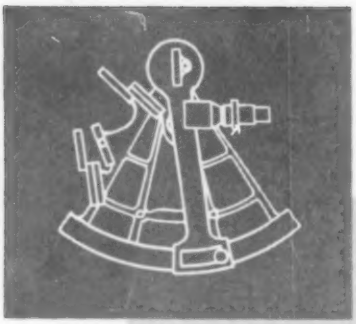

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Carbohydrate	17.7 Gm.	5.7 Gm.	23.4 Gm.	†Calcium	15 mg.	148 mg.	163 mg.
Fat	2.0 Gm.	4.4 Gm.	6.4 Gm.	†Phosphorus	115 mg.	113 mg.	228 mg.
†Thiamine	0.18 mg.	0.05 mg.	0.23 mg.	Potassium	162 mg.	163 mg.	325 mg.
†Niacin	0.26 mg.	0.10 mg.	0.36 mg.	Zinc	1.08 mg.	0.45 mg.	1.53 mg.
†Riboflavin	0.05 mg.	0.19 mg.	0.24 mg.	†Folic acid	11.4 mcg.	0.3 mcg.	11.7 mcg.
†Pyridoxine	0.07 mg.	0.06 mg.	0.13 mg.	Vitamin B_{12}	0.1 mcg.	0.7 mcg.	0.8 mcg.
Pantothenic acid	0.25 mg.	0.41 mg.	0.66 mg.	†Copper	0.31 mg.	0.04 mg.	0.35 mg.
†Vitamin A plus Carotenoids	—	0.08 mg.	0.08 mg.	Manganese	1.45 mg.	0.002 mg.	1.45 mg.
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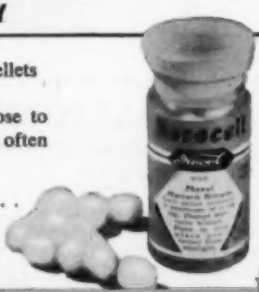

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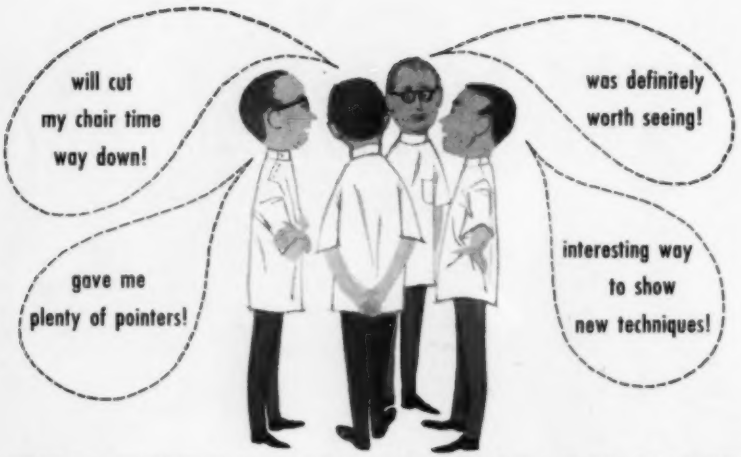

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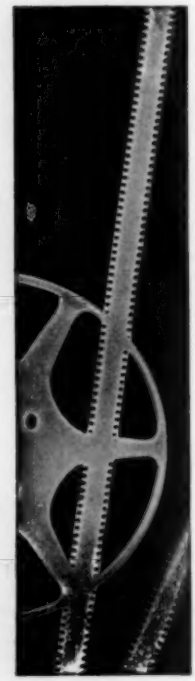

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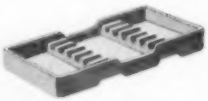

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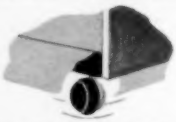

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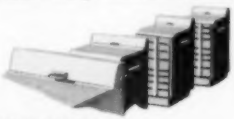

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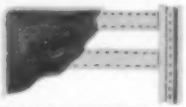

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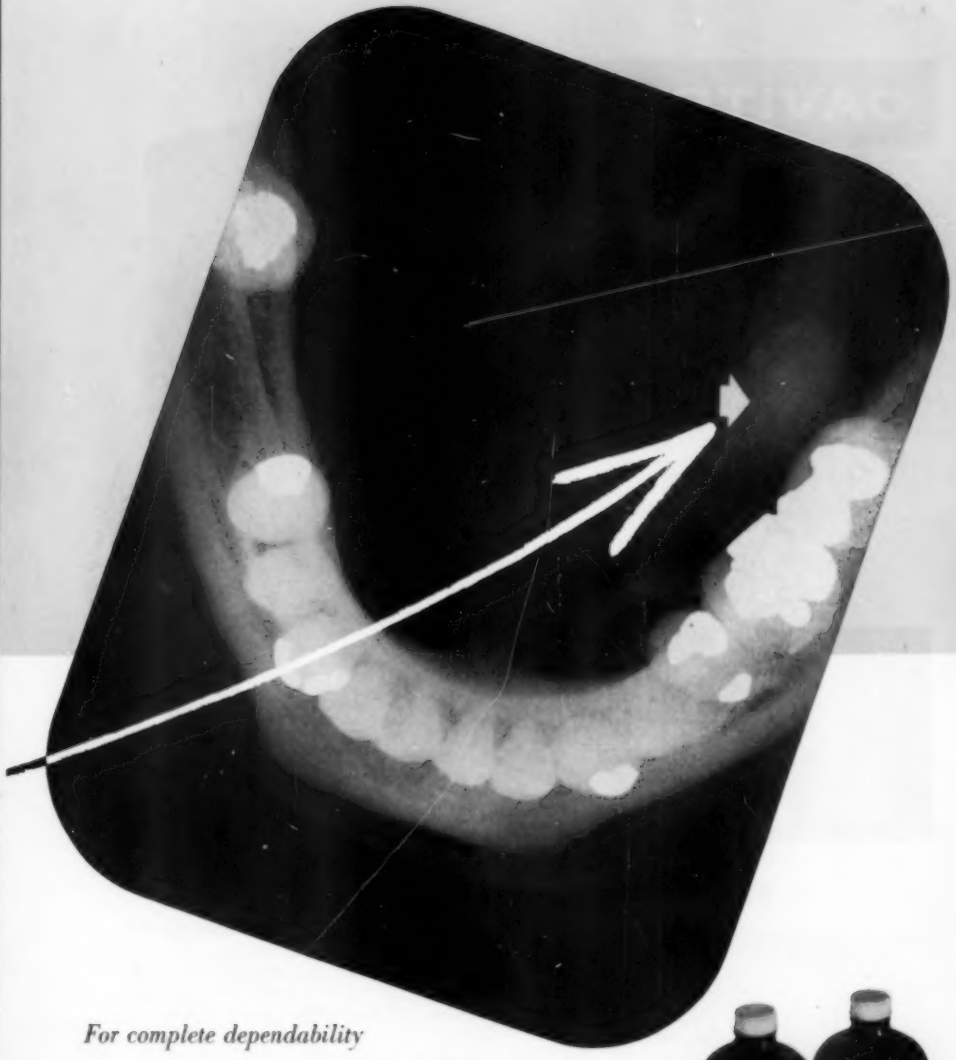

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Preferred by patients

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Clinical reports on approximately 20,000 patients showed almost unanimous preference for Cavitron over other cutting methods.

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Makes better dentistry easier

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* Zach, L., and Brown, G.N.: N.Y. State D.J., Jan. 1956
Zinner, D., and Whetstone, W.: J. Den. Child., Mar. 1956
Friedman, J., and Lite, T.: N.Y.J. Den., Apr. 1956
Van Huysen, G., Healey, H. and Patterson, S.: I.A.D.R. Abstracts, No. M-27, 1956
Butt, B., Harris, N., Shannon, I. and Zander, H.: I.A.D.R. Abstracts, No. 34, 1956

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"FREE-TO-SMILE" FEELING

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This standard of quality is well known to the VITALLIUM Processing Laboratories. They are engaged with you in a common task. They undertake to provide you with restorations at charges which are always reasonable, and in keeping with the high quality of the materials they use and the advanced skills of their technical staffs.

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1. **NEUTRALIZES** cement acids
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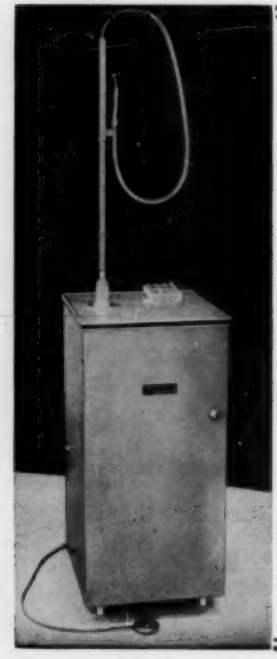

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*JADA Vol. 47, P. 324-329, Sept. 1953. NELSEN, R. J., D.D.S.; PELANDER, C. E.; KUMPULA, J. W.: Hydraulic Turbine Contra Angle Handpiece. (Reprint on request)

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- Bright satin chrome component parts
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- New surgical type aspirator
- Handpiece speeds in excess of 13,000 R.P.M.
- Contoured swinging bowl arm, flame-polished bowl — condensation drip-proof.

UN-ETTE MAY BE PURCHASED AS A SEPARATE ITEM WITH OR WITHOUT SYRINGES

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- Controlled by foot-operated switch • Noiseless
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"dentistry's best-behaved silicate"

If humidity gives you a hard time in placing silicate fillings . . . use Syntrex! This new and different material is almost as immune to moisture as the duck. Regardless of atmospheric conditions, Syntrex mixes easily. Sets promptly. Develops strength rapidly. And remains virtually insoluble in the mouth!

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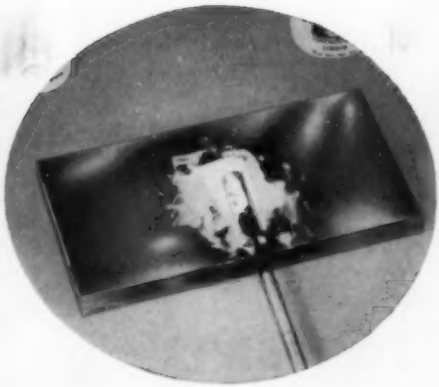
Grip Cement mixes easily and quickly . . . yet allows ample working time for seating precision appliances.



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When you mix *Grip Cement* on the Resinslab, simply tear off and discard the sheet on top . . . leaving a fresh, clean surface for your next mix.

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With the thinnest cement line, *Grip Cement* exerts tremendous holding power. It is non-friable, uniformly radiopaque, virtually insoluble in the mouth. A good thermal and electric insulator. Ideal for crowns, bridges, inlays, facings of porcelain, gold, acrylic.

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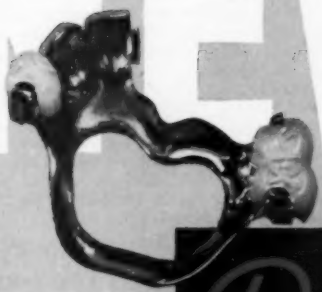

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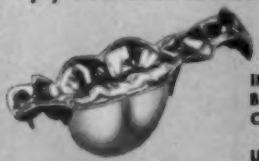

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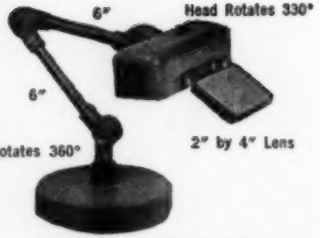
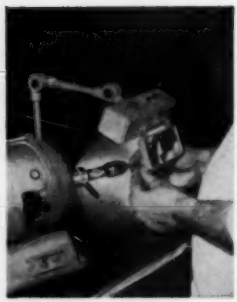


Heavy Cast Base — Will Not Topple



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These improved cotton rolls are a delight to the efficient dentist and are not harsh to the patient's mouth. They are actually spun from 100% pure surgical absorbent cotton to make them softer, more pliant and noncollapsible. They adapt easily into any position, are stretchable and small tufts are quickly detachable.

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Will your patient still praise your dentures

-Six months after?

Months after insertion, will your beautifully fitted dentures still be praised as they deserve? Or will the patient blame you for discoloration from careless cleansing, or for loss of delicate ridges from harsh abrasive scrubbing?

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The "Easy" Way is the "Best" Way

The easy way – and the best way – is the Polident way. Easy – because "soak-and-rinse" is so much simpler than "handle-and-scrub". Best – because Polident effectively floats away debris, removes stains, and completely destroys all denture odors.

It's a sound "policy" – for protection of patients' dentures . . . and patients' goodwill!

Recommended by more dentists than any other denture cleanser

Write for generous supply of free office samples

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200-INCH PALOMAR TELESCOPE

Not in a light year! Its meticulously polished surface must be cleaned with the utmost caution, to preserve its perfection and usefulness.

Dentures, too, require the greatest of care in cleansing, to retain their lustrous finish and beauty. That's why so many dentists urge their patients to use Wernet's Dentu-Creme and Wernet's Denture Brush.

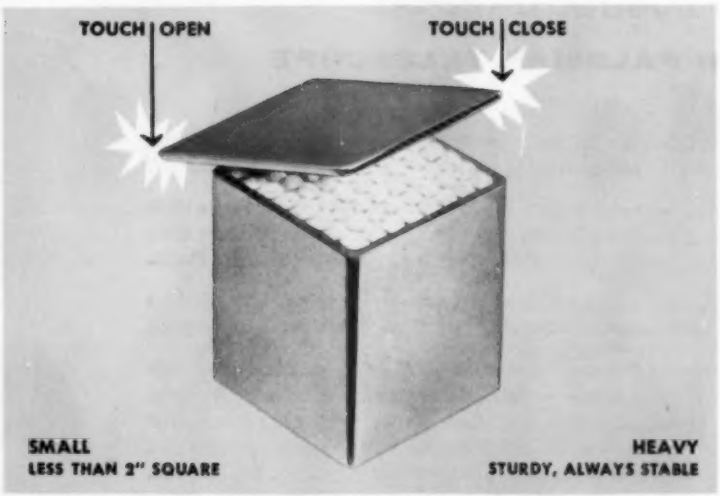
Dentu-Creme is an excellent detergent—smooth and non-injurious with a special polishing agent that's ideal for use on acrylics.

Wernet's Denture Brush, with its Easy Grip Handle, provides two bristle sections, in conformance with professional preferences. Its black bristle section is for use on ridge and vault; its white bristle section on teeth and interproximal spaces. All bristles are anchored in position for long life.

For thorough removal of food particles, mucin plaques and stubborn stains, with safety to the denture, suggest Wernet's Denture Brush and Wernet's Dentu-Creme.

WERNET DENTAL MFG. CO., INC.
JERSEY CITY 2, N. J.

WERNET'S DENTURE BRUSH



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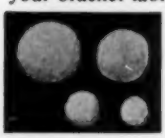
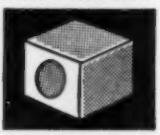
PELLET DISPENSER

The new pellet dispenser for easier, one-hand operation—just tilt the top back with the little finger of the hand holding the cotton pliers, withdraw one pellet at a time, close with the little finger.

You, too, will want TILTOP on your bracket table because it is »»»»



Pellets #1, 2, 3 and 4



Cartridge box with "push-up" bottom

PRACTICAL—keeps pellets clean and covered, may be refilled quickly with cartridge boxes, pellets need never be touched or handled.

CONVENIENT—wire mesh cover allows each pellet to be removed singly, quickly and easily—only a "working supply" is opened at one time.

ATTRACTIVE—beautiful chrome finish is handsome on bracket table, easily cleaned, never stains.

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See TILTOP at your dealers now, or write for information.

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PEN·VEE·*Oral**

Penicillin V, Crystalline (Phenoxymethyl Penicillin)

a new penicillin
for efficient absorption
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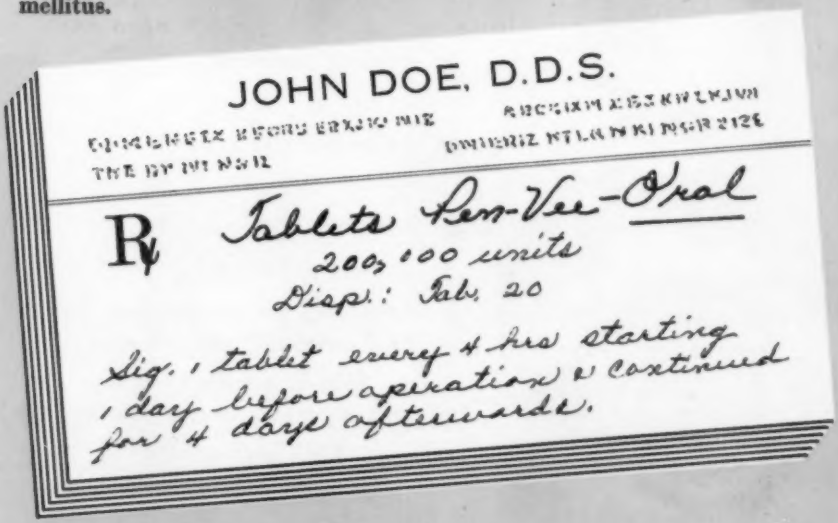
For adjunctive *therapy* in penicillin-responsive oral infections. For adjunctive *prophylaxis* in oral procedures, especially in patients with a history of rheumatic fever, congenital or valvular heart disease, diabetes mellitus.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℞ Tablets Pen-Vee-Oral
200,000 units
Disp: Tab. 20
Sig. 1 tablet every 4 hrs starting
1 day before operation & continued
for 4 days afterwards.

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Supplied: Tablets, 200,000 units, scored, bottles of 36; 500,000 units, scored, bottles of 12.

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1—Inserting inlay in rubber mold.

2—Pouring investment.

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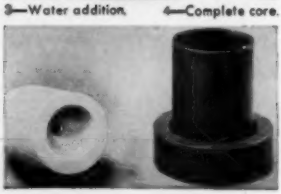

For the New Controlled Water Addition Process!

- ★ Simple low-heat technique
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- ★ Perfect casting every time!
- ★ Available in convenient AQUA-PAK envelope...also in cans.

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Partials processed with *Nobilium* Aristocrat of Chromium Alloys, are characterized by *elegance*—a richly handsome appearance, a fit that conforms with exactitude, and a sense of security that confers peace of mind on both dentist and patient. The employment of Nobilium alloy, duplicating materials, investments, pre-formed wax patterns, and the fabulous Nobilium electric casting machine and electrolytic polisher *offer you many advantages unobtainable in any other way.* Remember your preferred dental laboratory can supply you with Nobilium appliances incorporating all of the latest Nobilium features for esthetics, comfort and functional service. It's good dental practice to specify Nobilium.

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Key No.	Hotel	Single	Double	Suite Room with Parlor
1	Breakers	$5.00–11.00	$ 7.00–18.00	
2	St. Charles	6.00–10.00	8.00–14.00	$24.00–28.00
3	Morton	6.00– 9.00	8.00–12.00	
4	Clarendon	5.00– 6.00	7.00	
5	Seaside	6.00–11.00	8.00–14.00	28.00
6	Holmhurst		7.00– 8.00	
7	Colton Manor	7.00–10.00	9.00–14.00	
8	Abbey	6.00–10.00	8.00–14.00	
9	Haddon Hall	7.00–11.00	10.00–23.00	36.00–44.00
10	Chalfonte	7.00–11.00	10.00–23.00	
11	Lafayette	5.00– 8.00	8.00–14.00	18.00–30.00
11A	Carolina Crest	5.00– 7.00	7.00–10.00	
12	Penn-Atlantic		7.00–10.00	
13	Senator	5.00–11.00	7.00–16.00	28.00
14	New Belmont	4.00– 5.00	6.00–10.00	
15	Mayflower	6.00–11.00	8.00–14.00	
16	Flanders	5.00– 6.00	7.00–10.00	
17	Columbus		6.00– 8.00	
18	Lexington	5.00	6.50– 8.50	
20	Monticello	4.00– 5.00	7.00	
21	Richfield-Boscobel	4.00– 6.00	6.00– 8.00	
22	Sterling	5.00– 7.00	8.00–10.00	
23	Jefferson	6.00– 8.00	8.00–12.00	
24	Kentucky	3.50	6.00– 7.00	
25	Madison	6.00–12.00	7.00–14.00	
26	Traymore	8.00–22.00	10.00–24.00	20.00–45.00
28	Claridge	7.00–15.00	11.00–19.00	36.00
29	Crillon		8.00–12.00	
30	Eastborne	5.00– 8.00	7.00–11.00	
31	Runnymede	4.00– 7.50	6.00–10.00	
32	Marlborough-Blenheim	7.00–10.00	10.00–20.00	26.00–40.00
33	Dennis	7.00–12.00	10.00–22.00	35.00–45.00
34	Shelburne	6.00–16.00	10.00–22.00	39.00–50.00
36	Ritz-Carlton	6.00–18.00	8.00–22.00	35.00
37	Ambassador	8.00–18.00	10.00–22.00	20.00–45.00
38	Chelsea	5.00–11.00	7.00–16.00	24.00–30.00
39	Mark	4.00– 7.00	6.00–10.00	
40	President	5.00–10.00	8.00–18.00	19.00–24.00

ATLANTIC CITY'S STREETS ARE 13 BLOCKS TO THE MILE INSTEAD OF THE USUAL 8.

Hotel reservation application

97th Annual Session
American Dental Association
Oct. 1-4, 1956
Atlantic City, N. J.

INSTRUCTIONS: Reservations for hotel accommodations may be secured for Atlantic City, N. J., by completing this application and mailing it to: A.D.A. Housing Bureau, 16 Central Pier, Atlantic City, N. J.

Be sure to indicate your arrival time in Atlantic City. Reservations will be held only until 6 p.m. of the day you indicate when you will arrive in Atlantic City unless special arrangements are made with the hotel.

Names of all persons who intend to occupy the accommodations must be listed on the application.

List four choices of hotels. Confirmation will be sent to the applicant indicating which hotel has accepted the reservation.

Write the A.D.A. Housing Bureau in Atlantic City if you wish to cancel the reservation.

A.D.A. HOUSING BUREAU • 16 CENTRAL PIER, ATLANTIC CITY, N. J.

(Please print or type) A.D.A.

Applicant:

Name_____

_____
(Street address) (City) (Zone) (State)

Arrival in Atlantic City_____ a.m. p.m. Leaving_____

Accommodations:

Hotel_____ (First choice) Hotel_____ (Third choice)

Hotel_____ (Second choice) Hotel_____ (Fourth choice)

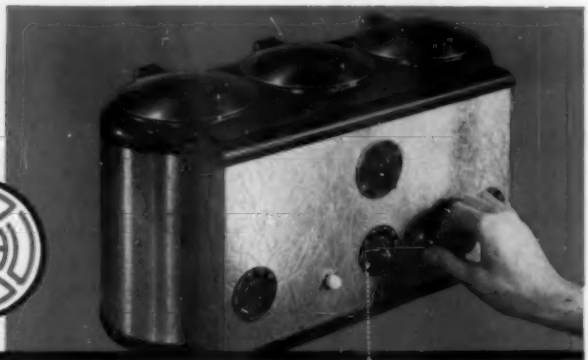
☐ Single occupancy, rate to range from $_____ to $_____ per day.
☐ Double occupancy, double bed, rate to range from $_____ to $_____ per day. } 2 names must be listed below
☐ Double occupancy, twin beds, rate to range from $_____ to $_____ per day. }
☐ Suite of_____ rooms, including parlor, rate to range from $_____ to $_____ per day.

Occupants: (use an extra page for listing additional names if necessary)
Room will be occupied by:

_____
(Name) (Address) (City) (State)

_____
(Name) (Address) (City) (State)

LIQUEFYING • STORING • TEMPERING
performed accurately, automatically



hydrocolloid conditioner

Three compartments for timer-controlled liquefying, thermostatically controlled storing and tempering.

Removable receptacles, each with lifting rack for tubes, syringes or trays.

A completely self-contained unit, the Hanau Electric Hydrocolloid Conditioner performs each conditioning stage under accurate, automatic control.

With time-saving, uniform results, it provides all facilities, within one compact unit, for: boiling tubes or syringes for the prescribed time . . . storing them at proper temperature for day-long use . . . and tempering filled impression trays. Thus, without supervision, hydrocolloids may be completely conditioned in a matter of minutes for use at any time throughout the day.

Obtain complete information from your dealer or write Hanau for literature.

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CUTTING INSTRUMENTS

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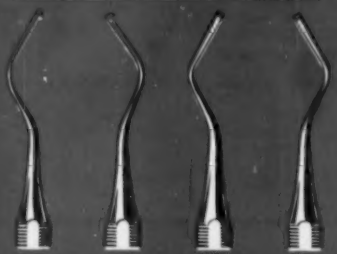

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Enlarged view of Tungsten-Carbide Chisel T-C 6

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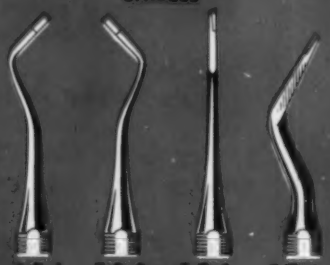

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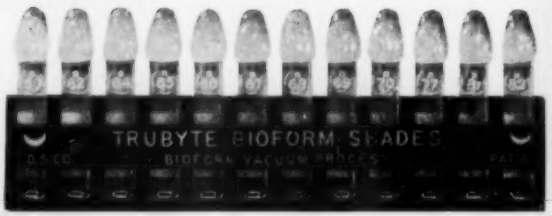

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